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ORIGINAL ARTICLES.

DIGITAL DIVULSION OF THE PYLORUS FOR CICATRICIAL STENOSIS.[1]

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DIGITAL divulsion of the pylorus for cicatricial stenosis as first practised by Prof. Loreta, of Bologna, Italy, in 1882, has scarcely received the attention which it deserves anywhere, except in Italy.

The mortality from the twenty-five operations which the author succeeded in collecting is not great, when we consider that every successful case is a patient rescued from certain, and by no means distant, death, and this mortality is already decreasing.

The cases in which the operation would be of service are not so very rare. When searching the journals for records of such operations I found the reports of the presentation of many specimens of cicatricial stenosis of the pylorus to various pathological societies. My own experience has been limited to two operations. Even the first, though it proved fatal on the fourth day, encouraged me to operate again, as I was fully satisfied that had it been performed earlier, when the patient was stronger, there was no reason why it should not have been successful.

My second case had the following history:

Mrs. G., aged forty-eight years, a patient of Dr. Adams, of Vineland, N. J., was first seen by me at her home, near Vineland, in December, 1888. For convenience of study and operation I admitted her to Jefferson College Hospital in January, 1889. During 1884, 1885, and 1886 she had suffered from gastric ulcer. She had pain and vomiting immediately after eating, the vomiting occurring as many as six times in the twenty-four hours; she lost greatly in weight and had two severe hemorrhages. In 1887 all of the symptoms left her and for the greater part of the year she enjoyed excellent health, weighing in January, 1888, one hundred and forty-three pounds, which was more than she had ever weighed in all her life. During 1888 she became very ill with symptoms of pyloric obstruction and lost flesh rapidly, weighing after her admission to the hospital, only ninety-three and one-half pounds. She then vomited but once in twenty-four or forty-eight hours. This occurred when she laid down at night and was not accompanied by nausea. It was usually from one and a half to two quarts in quantity and measured nearly and sometimes quite as much as all the nourishment taken since the preceding act of vomiting, twenty-four hours before. Many articles taken during the day could be recognized; indeed, she stated that she had occasionally been able to recognize articles eaten as long as two weeks before. As she took her meals she felt that the stomach was becoming more and more distended and when she laid down at night, gravity brought the contents of her stomach into her throat and they were then vomited. Her bowels were obstinately constipated, acting only once in twelve or fourteen days, and then only after frequently repeated large injections; purgatives administered by the mouth producing no effect. She had lately been able to feel occasionally a small tumor about the size of a hazel-nut, two inches to the right of the umbilicus and situated quite deeply. Her stomach was greatly enlarged; distended by the carbonic acid gas developed from half of a soda powder, it reached as low as the umbilicus and as far as the small tumor, though we could not say that the tumor was connected with the stomach.

The vomited matters separated themselves into the usual three layers, the middle one being quite clear. They were nearly free from undigested food and not offensive; free hydrochloric acid, though searched for, was not found.

The operation was performed in the presence of the class of Jefferson Medical College, February 16, 1889. The surface of the abdomen had been prepared the day before, the mercurial dressing being still on when the patient was brought into the amphitheatre. Her stomach had been washed out on the morning of the operation with a solution of biborate of soda. This had been repeated until the fluid returned quite clear. Chloroform was used as the anæsthetic in preference to ether, as being less apt to be followed by vomiting. The hands and instruments having been prepared with antiseptic solutions, I made a median incision through the skin, about four inches long, terminating at the umbilicus. The peritoneal incision, however, was only three inches in length. There was but little bleeding and it was readily controlled by clamp forceps.

The dilated stomach sac was found directly beneath the incision. The junction of the stomach and duodenum, even from the outside, was markedly contracted and irregular on its surface. There were no adhesions and there was no tumor. The tumor was found to be a hard scybalous mass in the ascending colon which also contained quite a number of smaller masses of hardened fæces. As the wall of the stomach, three inches from the pylorus, felt quite healthy, I folded it transversely midway between the greater and lesser curvatures, and with a

[1] Read before the American Surgical Association, May 15, 1889.

pair of sharp scissors made an incision between one and a half and two inches in length. There was no bleeding requiring attention. I introduced my index finger through this incision and felt the pylorus, contracted to about the size of a No. 10 French catheter; its margins were quite hard and fibrous. As the fingers would not enter, the blades of a small uterine dilator were guided by the finger into the contracted pylorus, which was then readily dilated until it admitted the index finger. With the aid of a pair of œsophageal forceps it was still further dilated until both the index and middle fingers were admitted. The two fingers were then separated about half an inch, when I ceased, feeling that further effort would probably rupture the mucous membrane. This dilatation gave to the pylorus a circumference of four and one-half inches.

The mucous membrane of the stomach at the point of incision was brought together by a continuous silk suture, and the serous coat by a continuous Lembert suture also of fine silk carried in an ordinary sewing needle. This suture was introduced deeply into the muscular coat in order to obtain a firm hold; even then it tore out at one or two points, requiring an interrupted suture to be used at those places. When the finger was first introduced into the stomach it caused some retching, forcing most of the stomach out of the wound, where it was kept during the subsequent manipulations. After the wound in the stomach was closed the organ was carefully sponged and restored to the abdominal cavity. The abdominal wound was then closed and dressed in the usual manner.

The patient vomited about four ounces of blood half an hour after the operation, but there have been no nausea and no vomiting since. She was nourished exclusively by the rectum until the fourth day. From that time until the fourteenth day she was fed upon peptonized milk and animal broths. After the seventh day she took from forty-eight to sixty ounces of liquid nourishment in the twenty-four hours. Some solid food was given on the tenth day, and after the fourteenth day she was fed upon a carefully selected solid diet. On the thirtieth day after the operation she was able to eat eggs, mutton chops, oysters, beef, chicken, lamb, potatoes, cream, toast, bread and butter, milk, and coffee. Her temperature has never been over 99° F., nor under 98° F., since the operation. Her bowels act naturally every day. The abdominal stitches were removed on the ninth day. On February 8th, before the operation, she weighed 93½ pounds; March 25th, she weighed 110 pounds; April 15th, 118 pounds; and April 27th, 122 pounds. She was able to leave the hospital April 10th. She had no pain at any time, and required no anodynes.

I have succeeded in collecting twenty-five published operations; many of these are by Prof. Loreta. I had hoped to have obtained the results in all his cases, but Dr. Peruzzi, his chief assistant, replies to a letter of inquiry, that the Professor has performed in all about 30 operations, and that at least six more have been performed by other Italian surgeons. They were all successful when the diagnosis was correct. This would make the total number of operations about 43. The 25 operations included in my list were performed on 24 patients, one patient having been operated on twice successfully by Prof. Loreta. From the 25 operations there were 15 recoveries and 10 deaths, making a mortality rate of 40 per cent. Of the 10 deaths, 6 were due to shock, 2 to hemorrhage, 1 to tetanus, and 1 to suppression of urine. The large mortality from shock in an abdominal section performed in from half an hour to an hour is probably due to the fact that in this, as in most new surgical procedures, the operation is postponed too long. The mortality is already decreasing. Of the first 12 cases reported, 6 recovered and 6 died; while of the last 12, 9 recovered and 3 died. This mortality can, perhaps, be still further lessened by earlier diagnosis and operation, and by such methods of operation as are most quickly performed and accompanied by the minimum loss of blood.

DIAGNOSIS.—The diagnosis can be conveniently divided into two parts: 1. To determine the existence of pyloric obstruction; and, 2. To differentiate between obstruction caused by cancer and that caused by cicatricial stenosis. But few of the reported cases have such a typical history as the one I have related. The coexistence of dyspeptic symptoms, or of some still open ulcers, complicated the diagnosis in most of the cases. I should regard as of little value some of the symptoms upon which much stress has been laid. The material vomited in some cases consisted of partly digested food; in some it was wholly undigested and offensive; while in others it consisted of well-elaborated chyme. The character of the material indicates the health and physiological activity of the stomach, but throws little light upon the condition of the pylorus. In some cases sarcinæ were present, but in many they were absent. The same may be said of starch granules, of needles of the fatty acids, of free hydrochloric acid, of pain, and of other dyspeptic symptoms which have usually existed for many years before the symptoms of obstruction occurred.

The following symptoms I would consider of value: 1. A greatly dilated stomach. 2. The vomiting of from one to two quarts of material at one time. 3. The recognition in the vomited matter of articles that have been taken many hours, days, or weeks before. 4. When the act of vomiting is performed with great ease, without nausea, and the appetite is good immediately afterward. 5. Obstinate constipation. 6. The non-effect of ordinary purgatives. 7. A preceding history of gastric ulcer of several years' duration, and temporary improvement followed by simple obstructive vomiting of well-elaborated chyme many hours after taking food. This typical history occurred but twice among the twenty-four cases. Where the symptoms are obscure,

great reliance may be placed upon the detection of a decidedly enlarged stomach, as this is rare, except as a result of mechanical obstruction of the pylorus.

The mere presence of tumor is almost without value in the differential diagnosis between cancer and stenosis. In the 24 cases, tumor was present in 7, absent in 4, and not noted in 13. A rapidly growing, nodulated tumor low down in the abdomen is probably malignant. A poorly-defined tumor, not increasing in size, high in the abdominal cavity, is probably non-malignant. The average duration of cancer of the pylorus is one year (Brinton). The maximum duration, three years (Bartholow). The average duration of the gastric symptoms in 13 of the 24 cases in which this was noted was eleven years. The history of temporary improvement is against malignant disease. In the later stages of cancer, the obstruction is often removed by ulceration, and diarrhœa occurs. In the later stages of ulcer the obstruction increases, and the stenosis is more obstinate.

THE ABDOMINAL INCISION.—In all of the reported cases, but two methods of opening the abdomen have been used. One by an incision running from one inch below the ensiform cartilage to the extremity of the ninth rib on the right side, a distance of

OPERATIONS OF DIGITAL DIVULSION OF THE PYLORUS FOR CICATRICIAL STENOSIS.

No.	Operator.	Residence.	Date.	Age.	Sex.	Duration of disease.	Tumor.	Abdominal lesions.	Result.	Reference.
1	Loreta,	Bologna,	Sept. 14, 1882	47	M.	20 years	Tumor.	Edge of ribs.	Cure; 5 months after in perfect health.	Mem. Accad. Sci., iv. vol. Bologna.
2	Loreta,	Bologna,	Dec. 22, 1882	18	M.	7 years	None.	Edge of ribs.	Cure.	Raccog. Med., p. 147, 1883.
3	Giommi,	Cezena,	Feb. 1, 1883	?	F.	?	?	?	Death in 12 hours.	Ibid.
4	Loreta,	Bologna,	Mar. 17, 1883	46	M.	17 years	?	Edge of ribs.	Death in 37 hours.	Rcacog. litore, March 30, 1883.
5	Loreta,	Bologna,	July 15, 1883	34	F.	?	?	?	Cure.	Lancet, p. 376, Sept. 1, 1883.
6	Frattini,	Venice,	June 9, 1884	?	?	?	?	?	Cure?	Gaz. d'Osp., p. 392, 1884.
7	Loreta,	Bologna,	Mar. 9, 1885	26	F.	?	Tumor.	Median.	Cure.	Bull. de la Sci. Méd., p. 137, 1885.
8	Loreta,[1]	Bologna,	.....	...	..	.....	.....	.....	Death; shock.	Med. News, Philadelphia, March 20, 1886.
9	Loreta,	Bologna,	.....	...	...	.....	.....	.....	Cure.	" " " "
10	Loreta,	Bologna,	.....	...	...	.....	.....	.....	Death; shock.	" " " "
11	Loreta,	Bologna,	.....	...	...	.....	.....	.....	Death; hemorrhage.	" " " "
12	McBurney,	New York,	July 6, 1885	39	F.	20 years	Tumor.	Edge of ribs.	Death; hemorrhage.	Annals of Surgery, p. 372, 1886.
13	McBurney,	New York,	July 6, 1885	52	F.	30 years	Tumor.	Edge of ribs.	Death in 30 hrs. from suppression of urine.	" " " "
14	Loreta,	Bologna,	1886	19	F.	?	?	Median.	Cure.	La Riforma Med., p. 259, 1885.
15	Haggard,	England,	Mar. 9, 1886	51	F.	5 years	None.	Edge of ribs.	Cure; well March 30, 1888.	Brit. Med. Journ., Feb. 19, 1887.
16	Loreta,	Bologna,	Mar. 16, 1886	33	M.	?	None.	?	Death, 10th day from hemorrhage.	Accad. Sci., Bologna, April 24, 1887.
17	Barton,	Philadelphia,	May 22, 1887	58	M.	1 year	Tumor.	Median.	Death 4th day from exhaustion	Journ. Amer. Med. Assoc., p. 548, 1888.
18	Loreta,	Bologna,	Sept. 14, 1887	47	F.	7 years	?	Median.	Death, tetanus 5th day.	Gaz. de Osp., Milan, p. 803, 1887.
19	Loreta,	Bologna,	Oct. 13, 1887	35	F.	5 years	?	?	Cure.	" " " "
20	Loreta,	Bologna,	Oct. 31, 1887	34	M.	10 years	?	?	Cure.	" " " "
21	Treves,	London,	Dec. 1887	?	M.	?	?	?	Cure.	Lancet, p. 336, Feb. 18, 1888.
22	Loreta,	Bologna,	Jan. 30, 1888	54	M.	15 years	Tumor.	Median.	Cure; reconstracted.	Gaz. d. Osp., p. 618, 1888.
23	Loreta,	Bologna,	June 20, 1888	54	M.	15 years	.....	Median.	Cure; same patient; reoperation.	" " " "
24	Bull,	New York,	June 11, 1888	38	M.	20 mos.	None.	Edge of ribs.	Cure.	Letter from Dr. Bull.
25	Barton,	Philadelphia,	Feb. 16, 1889	48	F.	5 years	Tumor.	Median.		

[1] Letter to Dr. Harris stating that to November 30, 1888, he had had 9 cases, of which 5 were cured and 4 died, 3 from shock, and one from hemorrhage.

about six inches; the other, by an incision in the median line, between the ensiform cartilage and umbilicus, and from three to six inches in length. The first method was used by Loreta in his earlier cases, but he now uses the latter exclusively.

The stomach wound should be made far enough from the pylorus to be in healthy tissue. If some inches from the pylorus, it will be outside the zone of inflammation following the dilatation. Experimenting upon cadavers, I found that separation of my fingers more than an inch caused rupture of the mucous membrane.

The stomach wound has been closed in many ways, and all did well. In no case was there the slightest leakage. No case suffered from peritonitis, and in none was the stomach wound the cause of death. I would suggest that probably the best method would be a continuous suture of catgut to the mucous membrane and the suture of Appolito to the peritoneum.

Diet.—In some of the reported cases food has been given as early as a few hours after the operation, without injury. I delayed until the fourth day, although I see no reason why food should not be given earlier. Peptonized milk, animal broths, diluted wines, and the yolks of eggs would be the best articles, according to the condition of the stomach prior to operation. Rectal alimentation will be required until sufficient food can be given by the mouth. Solid food has rarely been given before the tenth day, and then sparingly.

PERMANENCY OF CURE.—Recontraction of the cicatricial tissue would naturally be feared, but Loreta, in January, 1885, nearly three years after his first operation, writes: "I have now operated on six cases. They all have recovered, and all remain well up to the present time." Haggard, in 1888, reports that the case he operated on two years before was "still perfectly well, no vomiting, dilatation of stomach less, and she has recently married." Peruzzi in his letter to me, March 22, 1889, states that he knows of only one relapse among the thirty cases upon which Prof. Loreta has operated. This patient was reoperated upon, recovered, and remained well.

In four of the fatal cases included in the list the obstruction was valvular, due to irregular contraction of the walls of the stomach. In another case, not included in the list, as the stomach was not opened, the valvular obstruction was caused by distortion produced by external adhesions. These were divided, and the patient made a good recovery. In another case not included in the list, the operator recognizing that he had badly ruptured the mucous membrane while stretching the pylorus, immediately performed pylorectomy, with recovery of the patient. In another case the obstruction was caused by an adherent pancreas. The cause of the adhesion was an ulcer starting in the posterior wall of the stomach and penetrating the pancreas. In this case, an incision about two inches in length was made from stomach to duodenum, passing through the pylorus. The two extremities of the wound were brought in contact and the wound sewn up at right angles to its position when made. When completed, it was parallel to the long axis of the body. This patient recovered after a serious illness.

PULMONARY CONSUMPTION A NEUROSIS.

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THE bacillus theory of pulmonary phthisis is accepted in some quarters as a self-evident truth. The reason for this cannot be positively and logically stated by even its most earnest devotees. If the bacillus is the cause of phthisis, then should our reasoning, based on the bacillus as such, be in harmony with the practical facts as they are found. It is not scientific to say that because a disease can be transmitted to the lower animals by inoculation that it is maintained in the same way in the human family under ordinary conditions. Cancer, and probably most diseases, are communicable in this manner, yet no one regards all such diseases as contagious.

We have learned from a long experience that there are certain well-defined general conditions to be fulfilled by a disease before it can be called contagious. These are (1) a protection of the individual against future attacks; and (2) an equal liability of all the unprotected, provided the same conditions obtain. In regard to the first prerequisite, it may be said that phthisis does not only not protect the individual, but really predisposes him to future attacks. Not only is this true of the individual, but all his descendants become more vulnerable to it. The very opposite holds true of smallpox and syphilis, which represent that class of diseases which are propagated from individual to individual, through a specific virus, under the ordinary conditions of life. These diseases not only protect the individual, but also lend a certain protective influence to his progeny—thus showing that the tendency of all true contagious diseases is toward an extinction of the disease, while in the case of pulmonary phthisis the leaning is toward an extermination of the individual and his offspring.

It is true, at least in some of the older cities of this country, that a slight diminution in the death-rate from consumption has taken place during recent years. This is not due, however, to any protection which the disease affords against future attacks, or to any precautionary measures which have been taken against bacillary infection, but entirely to the

fact that man, by a better acquaintance with the laws of preventive medicine—by improving the warming and ventilation of his dwelling and of his workshop, by avoiding overcrowded and damp habitations, by becoming more temperate in all things, and by living on good nutritious diet—has succeeded in establishing a greater harmony between himself and his environment, and has thus rendered himself less amenable to the disease.

In the second place, it may be stated that, so far as phthisis is concerned, there is no equal liability among those exposed to it. On the other hand, it is one of the most fastidious diseases in the selection of its victims. For example, no matter whether they are exposed or not, it may be foretold with a great deal of precision, that the youngest and then the oldest of a family are most prone to its attack. About three years ago I tabulated nearly five hundred cases of this disease, and found, as others had done before me, that this is the almost universal law. So, on the whole, the male is more liable than the female; the inactive more than the active; and those living near the sea level more than those living on the mountains. But the most positive proof that those exposed to the disease are not more liable to it than those not so exposed, are the statistics which have been collected in the Brompton Hospital for Consumption in London, during the thirty-six years which it had been in operation prior to 1882. During that period there were twenty-nine physicians and assistant physicians, and one hundred and fifty clinical assistants connected with the institution, and of all these, and of the one hundred and one nurses of which there is a health record, not a single case of phthisis could be traced to contagion, although six cases occurred among that number. That this exemption does not obtain, as is frequently asserted, in hospitals devoted to the treatment of infectious diseases, is well shown, at least so far as typhoid fever is concerned, in the records of the Massachusetts General and the Boston City Hospitals. In the former—from 1882 to 1887—no less than seven, and probably eleven; and in the latter—from 1884 to 1888—twenty-eight, cases of typhoid fever occurred among the medical attendants and employés.[1]

These and many other practical and incontrovertible facts oppose the contact theory of the origin of pulmonary phthisis, and naturally indicate that its existence must depend on other causes. Now what are these causes? In surveying the field of probability, it has appeared to me that the potentiality of disordered pneumogastric innervation to produce pulmonary disintegration has not received that degree of attention which is warranted by the facts. These nerves constitute the principal nerve supply of the lungs, and endow them with motion and special sensation. On *à priori* grounds one would think that a disturbance of their function might at least have some connection with the causation of phthisis; but, strange to say, the bacillus maelstrom has so completely swept everything before it, that no thought whatever is given to this phase of the problem. Now when we come to consider that disease of every cranial and of every spinal nerve is known to be followed by disease in the organs to which they are tributaries; that during recent years it has been found that peripheral nerve disease may exist independent of any central lesion; that this has thrown new light on many phenomena which were before supposed to be inexplicable; and that section of the vagi in animals is followed by inflammatory changes in the lungs, we may well ask if it is not incumbent on us as scientific men to ascertain whether or no the pneumogastric nerves share any responsibility in the evolution of pulmonary phthisis.

The influence of section of the vagi on the lungs has been studied by a great many observers, and it is known to be followed by death in rabbits within twenty-four hours, and in dogs within a week. The pathological changes which this operation calls forth have been compared by Traube, Mendelsohn, Barthez, Friedländer, and others to a broncho-pneumonia, and it is said that Schiff succeeded in developing yellow tubercles in the lungs of rabbits. In one of my own experiments, a series of which I have under way at present, and in which I slightly stretched the left vagus, and then wrapped it tightly with cotton saturated in glycerine, I found small yellow nodules under the pleura, which had all the appearances of yellow caseating tubercle in man. I do not relate this in the belief that all the characteristic lesions of phthisis can be produced in animals, but merely because it seems to confirm the findings of Schiff. The inflammation produced in this way is called "schluck" pneumonia, inasmuch as it is supposed to be due to the entrance of foreign particles, such as food, mucus, etc., into the windpipe on account of the paretic condition of the larynx. This does not seem to be true, however, for Arnsperger (*Virchow's Archiv*, vol. ix. pp. 197 and 437) has shown that if, after section of the nerves, a tube is inserted in the trachea, and the entrance of foreign bodies into the lungs is prevented, the same pulmonary changes occur.

At the present time, when almost every disease is traced to bacillary infection, it is interesting to know that this form of pneumonia contains microörganisms, which, on being inoculated, reproduces the disease in healthy animals. Thus Jens Schou (*Fortschritte der Medicin*, 1885, No. 15) found that in vagus-pneumonia an abundance of various bacteria

[1] Boston Medical and Surgical Journal, May 24, 1888, pp. 513 and 523.

were produced in the alveolar and pleural exudations. He isolated three varieties of bacteria, which he cultivated in proper media. The first was an elliptic coccus of medium size, which, on being injected directly through the thoracic walls into the lungs, or through the trachea, always generated a typical vagus-pneumonia. Culture fluids, which were sterilized before injection, always produced negative results. The other two were also cocci, of somewhat different shape from the first, but they were incapable of calling forth the same morbid process in the lungs. Friedländer's coccus could not be found. All the vagotomies were performed in a bloodless manner, under strict antiseptic precautions, and the animals were kept in clean cages and received no food.

These experiments certainly prove that vagus disintegration is followed by a pneumonia which produces certain kinds of microörganisms, which, on being introduced into healthy animals, reproduce the disease from which they originally sprang. This brings up the interesting question as to how far the same principle holds true in the artificial production of bacillary phthisis; and it also indicates the possibility that some more of our so-called infectious diseases, not dependent on microörganisms originally, may generate their characteristic bacteria, which, when introduced into the bodies of healthy animals, are capable of calling forth the original diseases.

That pulmonary consumption is either very closely related to, or possibly dependent on, the nervous system, has been present in my mind for a number of years, and in the fall of last year I embodied my views on this subject in two lectures[1] which I delivered at the Philadelphia Polyclinic, and in concluding which I said: "From the evidence which has thus been collected it appears that pulmonary consumption is certainly not a local disease; that it is essentially a neurosis of the peripheral nerves; that the neurosis in all probability establishes a herpes of the vagi, in the same manner as a similar affection is produced in the skin, which gradually leads to all the characteristic lesions of the disease; and finally we will no longer be forced to admit that the disease, originally diagnosed as pulmonary consumption, has been superseded, or is accompanied by paresis, dropsy, intercostal neuralgia, peripheral or multiple neuritis, herpes zoster, and a multiplicity of other diseases, if we accept the neurotic nature of this disease, which implies that all these complications are but the legitimate results, and that the lung affection is but one of the many manifestations of the fundamental disorder."

At this time I was not aware that this question had been approached in a similar way by any one else, but within a few days only I had the pleasure of finding that as far back as 1871,[1] under the heading of "Phthisis as a Neurosis," Dr. Clifford Allbutt discusses a variety of phthisis which, he holds, does does not agree with the general meaning of the term "phthisis." He says that patients belonging to this type of the disease come from the neurotic class, in illustration of which he cites the following cases which came under his observation:

"About a year ago I attended a refined lady belonging to a highly neurotic family, and whose children presented the like characters; she had been a nervous, irritable, neuralgic woman all her life, but never actually ill in any serious way. She was worn down by nursing one who was very dear to her, and whose death, which followed, shocked and prostrated her still more. She took to her bed with consolidation of the apex of the right lung, then of the left; in both the mischief spread rapidly, hectic fever ran high; in three weeks she was dead. Her age was forty-three. On the autopsy, which was made in consequence of her death appearing to her family to be very sudden, we could not find a single tubercle in the body; but the apices of the lungs were almost destroyed, and less degrees of mischief were found below.

I had seen another case, a few years before, in which such a galloping consumption had occurred after nervous depression in a highly neurotic subject. The son of nervous parents on both sides, the father being odd and eccentric, and the mother actually insane, he was himself one of those heady, impassionable, gay fellows who make our charming prodigals—and a very pretty prodigal he was. Ruined in purse and character, and terribly depressed, though I do not think in any great degree worn out by actual vice, he arrived at home to meet with the reception such parents (or, at any rate, one of them) were likely to give him. A few days later he began to feel more and more exhausted; his pulse and temperature ran up; his right lung solidified and broke down; the left lung followed; and after five weeks of distressing illness he was dead. This case was the first which impressed me strongly with its probable neurotic origin. . . . Having, then, cases of phthisis presenting the exact features already described, and having also many cases of catarrhal broncho-pneumonic phthisis, and, more strictly, tubercular phthisis, presenting like characters intercurrently with others of their own, I felt that neither the catarrhal nor the tubercular theory accounted for all instances . . . until I began to find, in my own practice and in the writings of alienists, how large a part phthisis plays in neurotic families. Even then, however, it did not occur to me to associate any particular form of phthisis with neurotic disorder, until a few striking cases of my unclassable variety occurred in neurotic families under circumstances which spoke too eloquently to be overlooked. . . . If we try to go a step further and ask for a pathological explanation of these facts, we approach a land of darkness. The more, however, I study the relations of the disease, the more I am satisfied that the lung mischief is also a neurosis; by which I mean that the lesion is one not originating in the local tissues, but in the nervous system."

Thus wrote a shrewd medical observer eighteen years ago, and how well he pictures an experience so familiar to most of those who have given studious attention to the details of this disease! and were he

[1] Pulmonary Consumption considered as a Neurosis. Therapeutic Gazette, November and December, 1888.

[1] The Medical Times and Gazette, 1871, vol. ii. p. 613.

to write under the advanced intellectual influence of the present day he would, I am quite sure, not limit his neurotic type of phthisis to that class of cases in which the nervous element predominates most obviously, but would include all that is implied under the term of chronic idiopathic pulmonary consumption.

As clearly as it has been impressed on my mind that pulmonary consumption is at its root a nervous disease, it has been a question as to the manner of demonstrating the truth of this belief to the best advantage. Several possible avenues presented themselves through which the question might be solved. First, by experiments on the vagi of animals; second, by the collection of cases of human phthisis in which vagus disturbance was the cause of the disease; and thus establish a literature of cases on the subject. After giving the former a thorough test I found it inadequate, because, for reasons which will appear further on, phthisis is evidently a disease not dependent on a transitory, but on a protracted and long-continued disorder of the vagi, and the regulation of the desired degree of irritation in the vagi of animals in order to produce the proper result is very difficult, if not impossible, to attain.

Having ascertained the shortcoming of the first method, I endeavored to find whether or no the second was a feasible one. At this time I did not know that so much practical evidence could be obtained to insure the success of the second method. But with the aid of the almost endless variety of material which is furnished by the library of the College of Physicians, I am glad to state that I am able to report one hundred and four clinical cases which demonstrate that disintegration of the vagi[1] leads to phthisis, pneumonia, bronchitis, œdema, and to other forms of pulmonary disease in the human subject. The reference to these cases are given only, and in the following order: (1) Those in which disintegration of the vagi produced disturbance of hunger and thirst; (2) those in which it produced suffocation, paralysis of respiration, or collapse of the lung; (3) those in which it produced pulmonary œdema; (4) those in which it produced hemorrhagic infarcts in the lungs and in the pleura; (5) those in which it produced bronchitis; (6) those in which it produced pneumonia; and (7) those in which it produced pulmonary consumption.

There were three cases[2] in which vagi disease disturbed hunger and thirst.

Six cases[3] in which vagi disintegration led to a sense of suffocation, paralysis of respiration, or collapse of the lungs.

Seven cases[1] in which vagus disintegration caused pulmonary œdema.

Four cases in which vagus[2] disintegration produced pulmonary infarcts.

Seven cases[3] in which vagus disintegration led to bronchitis.

Twenty-seven cases[4] in which vagus disease produced pneumonia.

Fifty-one cases[5] in which vagus disease produced pulmonary consumption.

[1] Some exceptions, which are noted further on.

[2] *Longet:* Anatomie u. Phys. des Nervensystems, Bd. 2, S. 313; *Swan:* Treat. on Dis. of Nerves, p. 170.

[3] *Robert:* Gaz. des Hôp., 1853, p. 143; *Maixner:* Kriegsheilkunde, 1861, S. 116; *Longet:* op. cit., p. 312; *Goodhart:* British Med. Journ., 1879, vol. i. p. 542; *Schultz:* Virchow's Archiv, vol. vi. p. 271; *Neumann:* Deutsch. Arch. f. klin. Med., Bd. 28, S. 579.

[1] *Diebel:* Centralbl. f. Chirur., 1881, p. 748; *Gross, S. W.:* a private communication; *Duret:* Soc. des Science Méd. de Lille, 22 Avril; *Langenbeck:* Arch. f. klin. Chirur., Bd. 1, S. 77: *Moser:* Deutsch. Archiv f. klin. Med., Bd. 35, S. 418; *Busch:* Med. Times and Gaz., 1861, vol. ii. p. 176; *Heath:* Trans. London Path. Soc., vol. xxxv. p. 342.

[2] *Smith:* Lancet, 1888, p. 1022; *Stackler:* Centralbl. f. klin. Med., 1883, p. 316; *Putnam:* Boston Med. and Surg. Journ., February 14 and 21, 1889, p. 159; *Sommer:* Charité-Annalen, 1888, S. 647.

[3] *Riedel:* Fortschr. d. Med., 1883, S. 499; *Glynn:* Medico-Chirurgical Journ., 1887, p. 428; *Riegel:* Berlin. klin. Wochenschrift, 1885, No. 31; *Fearn:* Amer. Journ. Med. Sciences, 1848, p. 266; *Eccles:* Lancet, 1844, vol. i. p. 724; *Mendel:* Centralbl. f. Nervenheil., Bd. 8, S. 102; *Adamkiewicz:* Ibid., Bd. 3, S. 168.

[4] *Verga:* Allg. Chirur. der Kriegswunden, etc., Bd. 2, S. 83; *Gull:* Guy's Hosp. Reports, 1859, 3d series, vol. v. p. 307; *Quain:* Trans. London Path. Soc., vol. viii. p. 45; *Wilks:* Ibid., vol. x. p. 159; *Johnson:* Ibid., vol. xxiv. p. 42; *Maixner:* Vierteljahrschrift f. d. Prakt. Heilkunde, 1879, i. p. 87; *Löwitt:* Ibid., 1880, part 3; *Weil:* Deutsch. Arch. f. klin. Med., Leipz, 1876, Bd. 14; *Penzoldt:* Ibid., Bd. 13, S. 107–124; *Shech:* Ibid., Bd. 23, S. 2; *Stadelmann:* Ibid., Bd. 33, S. 125; *Freund:* Ibid., Bd. 37, p. 405; *Kast:* Ibid., Bd. 40, p. 41; *Goodhart:* Brit. Med. Journ, 1879, vol. i. p. 542; *Unverricht:* Neurol. Centralbt., Leipzig, 1888, p. 164; *Pelizaeus:* Inaug. Disser., Wurzburg, 1880; *Déjerine:* Deutsche med. Zeitung, 1887, p. 711; *Freund:* Wien. med. Wochenschr., 1886, p. 168; *Stewart:* Edinb. Med. Journ., April, 1881, p. 868; *Hubrich:* Arch. f. Psychiat., Bd. 5, S. 550; *Thomsen:* Ibid., Bd. 19, S. 191; *Lecorché:* Centralbl. f. klin. Med., vol. i. p. 282; *Hewson:* Penna. Hosp. Reports, 1868, p. 219; *Fergusson:* Amer. Journ. Med. Sciences, 1842, vol. iii. p. 221; *Schmidt:* Centralbl. f. Nervenheilkunde, vol. vi. p. 39; *Maier:* Virchow's Arch., vol. lxi. p. 1; *Eger:* Arch. f. klin. Chirur., Bd. 18, S. 502.

[5] V. Ziemssen Handbuch der Pathologie, etc., Bd. 11, S. 2; *Bernheim u. Simon:* Int. Centralbl. f. Laryng., 1887, 1888, p. 68; *Gull:* Guy's Hosp, Reports, 1859, 3d series, vol. v. p. 307; Ibid., p. 312; *Merzejewsky u. Rosenbach:* Neurol. Centralbt., Leipzig, Bd. 4, p. 361; *Guttmann:* Virchow's Archiv, Bd. 59, p. 51; *Heusinger:* Ibid., vol. xxvii. p. 206; *Merklen:* Deutsche med. Zeitg., Berlin, 1887, p. 1108; *Angyan:* Wien. med. Wochenschr., 1884, p. 515; *Longet:* op. cit., Bd. 2, S. 313; *Rosenheim:* Arch. f. Psychiat., Bd. 18, S. 782; *Vierordt:* Ibid., Bd. 14, S. 678; *Koppen:* Ibid., Bd. 17, S. 63, three cases; *Vierordt:* Ibid., Bd. 14, Heft 3; Ibid., S. 678; *Oppenheim u. Siemerling:* Ibid., pp. 125, 145, two cases; *Eisenlohr:* Ibid., Bd. 19, S. 314; *Oppenheim:* Ibid., vol. xx. S. 1; *Sakaky:* Ibid., Bd. 15, S. 584; *Wilks:* Trans. London Path. Soc., 1859, vol. x. p. 1; *Sharkey:* Ibid., 1868, p. 27; *Whipham:* Ibid., vol. xxxiii. p. 82; *Treves:* Ibid., 1887, p. 367; *Murchison:* Ibid., vol. x. p. 240; *Baumler:* Ibid., vol. xxiii. p. 66; *Barlow:* Ibid., vol. xxx. p. 254; *Bleuler:* Deutsches Arch. f. klin. Med., Leipzig, Bd. 37, S. 527; *Beger:* Ibid., Bd. 23; *Shech:* Ibid., Bd 23, S. 2; *Pilz:* Arch. f. k. Chirur., Bd. 9, S. 336; *V. Langenbeck:* Ibid., Bd. 1, S. 73; *Stimson:* Amer. Journ. Med. Sciences, 1881, p. 192; *Guttmann:* Centralbl. f. klin. Med., vol. i. p. 393; *Roth:* Ibid.,

I think the histories of these cases, among other things, give the most ample evidence that vagus disease not only leads to lung disintegration, but to that special form of disintegration known as pulmonary consumption. Of the 104 cases recorded, there is direct proof that in 84 the vagus disturbance was followed by lung disease, viz., in 6 by paralysis of respiration and lung collapse; in 6 by œdema; in 4 by infarcts; in 6 by bronchitis; in 25 by pneumonia; and in 37 by phthisis; while in the remainder of the cases the vagi were probably equally diseased, but were not examined, but in most of which it appears that the medulla oblongata, or some other point in the respiratory centre, was involved in the disease. Moreover, in the collection of my cases I found that the ganglion of the trunk of the vagus had been investigated *post-mortem* in 20 cases of pulmonary consumption, by Dr. A. Lewin (*Beiträge zur Pathologie der N. Vagus.* Dissertation, St. Petersburg) and in 11 cases of the pneumonia of paralytics, by Drs. Bianchi and Armandi (*Neurologisches Centralblatt*, 1888, p. 452), and it was found diseased in every instance. Hence, we have a definite record of 57 cases of phthisis, 36 cases of pneumonia, and 25 cases of other lung disease associated with vagus disease—besides 18 other similar affections concerning which there is a strong suspicion that they were due to the same lesion—or 136 cases in all. When we consider that no one, I believe, except Dr. Lewin, has investigated this question with a view of determining the relationship between vagus disease and phthisis, and found the association so constant, and that all my cases were collected from current medical literature, where they obtained incidental lodgement only, so to speak, leads one to believe that the two conditions are more intimately connected, one with the other, than is generally supposed.

These cases further show that phthisis is not a separate and independent disease specifically created by the tubercle bacillus, but that it is a condition which is slowly evolved out of other pulmonary disorders depending fundamentally on vagus disintegration. For in not a single instance was phthisis or even pneumonia produced by a sudden interference with the integrity of the vagi, as in division or in injury, but the devitalizing processes in both of these conditions was established either by a long-continued pressure on, or a slow disintegration of these nerves. So far as the character of the causes of vagus disintegration is concerned in my collection of cases, it may be said that in 94 these were distributed as follows: Neuroma, 3; atrophy and paralysis, 12; ligation, division, and other injury, 8; compression by enlarged glands, tumors, and aneurisms, 43; carcinoma, 7; and neuritis, 21.

These cases not only establish conclusively, then, that phthisis, pneumonia, and various other pulmonary affections are produced by long-continued pressure on the vagi, as by tumor, etc.; but that these diseases, and especially phthisis and pneumonia, are the result of a common degeneration of the vagi and the peripheral nerves, induced by the action of alcohol, syphilis, diphtheria, etc. Then, as further evidence of the implication of the peripheral nervous system in phthisis, we have the work of Dr. Jappa ("Zur Frage über die Veränderungen der peripherischen Nerven bie Schwindsucht," *Neurologisches Centralblatt*, Bd. 7, 1888, p. 425), which comprises the histological examination of the peripheral nerves in the bodies of fifteen persons who died of pulmonary tuberculosis. He investigated the sciatic, post tibial, internal plantar, crural, internal saphenous, superficial peroneus, median, ulnar, radial, cutaneous median, and radial interosseus nerves, and in every case nearly all these excised organs showed marked degeneration. The changes were in the axis-cylinder and perineurium, as well as in the sheath of Schwann, and the author says they should be regarded as parenchymatous in character. The intensity of the morbid changes was greater in the peripheral endings than in the trunks of the nerve. The vagi were not included in the examination. The spinal cord was inspected in twelve cases and found normal. In all these cases there were no manifestations of nervous symptoms during life, with the exception of some undefined neuralgias and muscle pains, general hyperæsthesia, which usually develop in the high fever and emaciation of phthisical patients.

The fact that not only alcohol, syphilis, and diphtheria, but measles, scarlatina, smallpox, copper, zinc, mercury, etc., are capable of playing a causative *rôle*, both in peripheral nerve disease and in phthisis, opens up the very interesting field of inquiry, which time and space forbid me to enter at present, as to how far these toxic agents are instrumental in maintaining the current death-rate of phthisis. When we consider the all-pervading evil effects of these agents, either in their acquired or inherited form, the conclusion becomes irresistible that they exercise a most powerful influence in this direction.

There is no more reason to suspect, however, that because pulmonary consumption is the morbid product of manifold causes, each cause brings about a specific form of the disease. That the pathological changes may vary in character and in appearance is

1885 and 1886, p. 294; *Rosenbach:* Ibid., vol. iii. p. 40; *Basevi:* Jahrb. f. Kinderheilkunde, 1878, p. 414; *Hanot:* Archiv Gén. de Méd., 1876, tom. 28, pp. 294, 297; *Grocco:* Riv. Clin. 25, p. 12, 1886; *Schmidt:* Jahrb., Bd. 214, S. 29; *Pitres et Vaillard:* Rev. de Méd., 1886, p. 193; *Senator:* Zeitschr. f. klin. Med., vol. xv. S. 61; *Guiter:* Virchow u. Hirsch, Bd. xxii. Part i. p. 203; *Vierordt:* Neurol. Centralbl. vol. v. p. 421; *Buss:* Centralbt. f. d. med. Wis., 1888, p. 195; *Eisenlohr:* Centralbl. f. d. Nervenh., vol. ii. p. 100; vol. x. p. 12.

true enough, but this is probably due more to a difference in the rate at which the disease travels than to a difference in the mode of its causation. If this were true, it would at least lend some color to the view that the nerve degeneration which accompanies what is now known as bacillary phthisis, is due to the destructive action of the bacillus tuberculosis. I have, however, not been able to find the record of a single case in which the tubercle bacillus had been associated with the degenerated nerves in phthisis.

In this connection it is certainly permissible to quote the very appropriate opinion of Dr. Gull, expressed by him in 1859, while discussing two of his cases, to which I refer in this paper. He said (*Trans. Lond. Path. Soc.*, 3d series, vol. 5, 1859, p. 312):

> This case affords an excellent illustration of the effects which are referable to paralysis of the pulmonary plexus on one side, accumulation of muco-purulent secretion in the paralyzed bronchi, subsequent dilatation of the tubes at their peripheral distribution, concomitant exudation into the air cells, hepatization, and at length disintegration of tissue on the other. . . . It is one of the evils of a too exclusively humoral pathology (*bacillary pathology we might say at the present day*)[1] that leads us to overlook the minute anatomical relations of disease, which are in themselves often a key to the sequence of morbid changes. These cases illustrate this proposition, for the possible local effects on the lung of injury to the pneumogastric and pulmonary plexus being recognized, whenever cause for that injury exists we may anticipate its results, and are not wholly dependent upon physical examination as we are if we limit our pathological view to the mere changes in the lung without considering how they are produced.

In his comments on one of his cases, to which I also refer, the eminent Dr. Wilks expresses himself in a similar strain. He says (*Trans. Lond. Path. Soc.*, vol. x. p. 1):

> It has been said that the patient died of phthisis, and the tumors were found accidentally, but in all probability the affection of the nerves—that is, of the pneumogastric, was the cause of the pulmonary disease, and therefore, so far from neuroma being a harmless affection, it was the cause of the girl's death. This idea was suggested by the observation of several other cases of lung disease occurring in connection with disease of these nerves, particularly as witnessed in aneurism of the aorta and cancer of the œsophagus. In these diseases death is often brought about by pulmonary affection, and the pneumogastric nerves are found implicated in the disease or pressed on by the tumor.

This brings up the collateral question whether pulmonary consumption invariably follows vagus disintegration. As a rule this obtains if, as has already been stated, the irritation is sufficiently prolonged. When this is not the case the evidence seems to show that only functional disturbance of the lungs and heart occurs, although I have found records of cases where, in the human subject, it is stated that one vagus was divided without detriment to life. By way of a slight digression I may say that on reviewing the literature from which I culled my cases, it is impossible not to believe that many of our functional and organic heart diseases depend on a lesion of the pneumogastric nerves. So, on the other hand, it must not be expected that a lesion of the vagus or of the nervous system is the primary source of every case of pulmonary consumption. There can be no doubt that phthisis is an auto-infectious disease, as has already been intimated, and that if a process of caseation is once established in the body there is always danger of secondary tubercular infection. Such examples of pulmonary consumption arise in consequence of caseating centres having been established in or around the pelvic organs through the instrumentality of pelvic cellulitis or salpingitis, as well as from caseating lymphatic glands anywhere in the body. I suspect that these causes play a more important rôle in the maintenance of phthisis than is generally suspected, especially in the female sex.

In summing up the evidence which has been adduced in this paper, I think it may be said to demonstrate that nature herself is constantly carrying on the experiment of phthisis-production on an extensive scale in the human family, and this to a degree unattainable in the lower animals through artificial means, and which is not done by an infusion of tubercle bacilli, but by a slow process of nerve degeneration, especially implicating the pneumogastric nerves; and that therefore this disease can no longer be regarded as confining its ravages to the lungs.

TREATMENT.—It is not my purpose at present to enter into any detailed discussion of the special treatment of phthisis, but merely to point out the general therapeutic principles which are indicated by this new line of thought in regard to the origin of the disease. And at the very outset it may be stated that if the value of any one therapeutic measure is more firmly established than that of another, it is that rest is the *sine quâ non* in the cure of nervous diseases. This has been abundantly proven by the scientific and practical researches of Dr. S. Weir Mitchell. Indeed, he demonstrated its efficiency in the treatment of phthisis more than ten years ago, and of which I was ignorant when I first wrote on this subject. He says on page 93 (*Fat and Blood*):

> "I have ventured, without much hope, to treat three cases of phthisis in the same manner (*i. e.*, with rest, massage, electricity, and feeding). There are cases of this nature in which exercise wearies. One of the cases treated got well and remained well. There was every evidence of pulmonary trouble. No. 2 improved enormously in all respects, and relapsed hopelessly, owing to large and repeated bleeding from piles and rectal fissure. No. 3, a male, æt. twenty-four, was treated by rest and massage, without electricity, and improved so as to resume his work."

As for myself, I can say that since I realize its importance I have had a good deal of practical ex-

[1] Italics mine.

perience with this method of treating consumptives, and can testify to its superiority. It is my custom to insist on such patients either to sit quiet or to remain in the recumbent posture during at least seven-eighths of the twenty-four hours. Those who readily tire in these positions for this length of time, must go to bed and remain there constantly for a month or six weeks, or longer if it is considered necessary, allowing only such exercise as is necessary to carry out other lines of treatment.

In order to supplement the active physical exercise of which the patient is deprived by this method of treatment, general massage and electricity must be employed once or twice a day, both of which will be found most useful adjuvants in making the rest-cure of consumption a success. In addition to the general application of electricity and massage, it is also very important to apply these measures locally over the course of the pneumogastric nerve. The galvanic current is preferably employed here, the negative pole being placed under the ear, and the positive pole on the clavicle near its union with the sternum, as well as over the epigastrium.

Flaxseed meal poultices, or the external application of moist heat to the chest, I have employed for a number of years in the treatment of this disease, and with the most gratifying results. These applications are made only during the daytime, and changed every three hours, or oftener, if they become cooler than the body—care being taken that they cover the apices of the chest well.

Another valuable acquisition to the therapeutics of consumption is the inhalation of compressed and the exhalation into rarefied air, or *vice versa*. Any one who has given this method a faithful trial has found abundant evidence of its usefulness. It gives complete ventilation to, and increases the capacity of, the chest; it relieves the dyspnœa, and acts as a powerful tonic to the whole body. In order to reinforce the good effects derived from this method of treatment, the patient must be taught to practise forced respiration—*i. e.*, to take eight or ten forced voluntary breaths in succession every hour or half hour.

In connection with all this, we must not lose sight of the marked benefit which may be derived from internal treatment. Pulmonary consumption is preëminently a wasting disease, and any food or medicine which supplies this constant waste, which facilitates digestion and assimilation, which checks the fever and renders support to the nervous system, is indispensable, and for this reason nutritious foods, cod-liver oil, hypophosphites, antifebrin, antipyrin, strychnine, quinine, atropine, etc., are of such great value, if used with discretion.

Furthermore, it is also obvious that in all cases of dyspnœa where there is no good reason for suspecting that the primary cause for it exists in the respiratory passages, the lungs, or the heart, it is an all-important matter to make a thorough examination of the vagi, even to the extent of cutting down upon them, if necessary, to become thoroughly satisfied that their potency remains inviolate. For these cases undoubtedly show that persistent dyspnœa, aphonia, and hoarseness often depend on paresis of one or both vocal cords (to relieve which tracheotomy often is and has to be performed), in consequence of a pressure upon the vagi or lower laryngeal nerves, by the thyroid or lymphatic gland, or tumor of some kind, which will be relieved by liberating the imprisoned nerves.

SALOL IN THE VOMITING OF INDIGESTION AND OF PREGNANCY.

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THE claims of salol in the treatment of some forms of diarrhœa, particularly cases in which the products of fermentative action are noticeably abundant, are fairly established. In a somewhat extended and varied experience it has achieved more than an ordinary measure of success.

During the recent summer months there was afforded me an opportunity to test its reputed efficacy in dysentery.

CASE I. was that of a child seven years of age, and very delicate. The evacuations from the bowels were frequent and large, and decidedly sanguinolent, consisting of about equal quantities of blood and mucus, only partially blended; tenesmus variable in intensity, occasionally exquisite; elevated temperature, accelerated pulse, hurried respiration, coated tongue, unpleasant breath and tympanitic abdomen. The usual treatment failed to afford any relief. Salol was given at first in doses of one and a half grains, gradually increased to two grains, repeated for the first twenty-four hours at intervals of three hours and afterward less frequently. At the end of the first twelve hours evacuations were observed to occur less often, the efforts at stool were less painful, the discharged matters exhibited a diminished proportion of blood. In two days' time the dejecta assumed a nearly normal alvine character—traces of blood and mucus reappeared at intervals for a short time, but convalescence was soon established.

In this instance the elevated temperature, accelerated pulse rate, hurried respiration, tumid belly, and large amount of blood and mucus, much of the former unmingled with the latter, indicated acute catarrhal colitis, set up by fermentative and putrefactive changes. The history and appearance and general condition of the child disclose a state of imperfect nutrition, the result of faulty digestion. Any agent that would modify or arrest fermentation and putrefaction must mitigate or cure the diseased condition resulting therefrom.

CASE II.—Maggie W., married, aged thirty-three years, of lymphatic temperament, delicate, no living children, a history of two premature births and of persisting gastric irritability in girlhood. More than three years have elapsed since stomach began to reject all solid food and much of a liquid form, only milk being partially retained, broths of every description sharing the same treatment.

Three years ago I was requested to prescribe, at which time patient's condition seemed deplorable—inanition seemed imminent. So emaciated was she that there appeared to be only the bony frame wrapped in integument; an anxious, hopeless, profoundly fatigued expression Under treatment she made some improvement, retained more of her exclusive article of food than she had previously, but continued to vomit a number of times every day. Vomited matter consisted of whatever had been ingested and a frothy, extremely acid mucus which seemed to excoriate the pharynx and mouth as it flowed up. Patient disappeared from observation, to reappear recently. By the diligent and heroic use of scale pepsin with hydrochloric acid, amendment set in and continued for three months, milk being better borne and digested, and weight in that time augmented by twenty-five pounds, but vomiting persisted.

The resources of the materia medica were taxed with but little additional advantage. The entire armamentarium of antiseptics and acids, bitter and acid tonics, pepsins and lactopeptones, not forgetting ingluvin, were called into requisition, but without avail. Preparations of carbolic acid and creasote were employed with brief temporary relief. Sodium sulphite and sodium phosphate apparently exercised no influence. To add to the embarrassment of the case, the patient became pregnant, gastric irritability increased, with emaciation and threatened prostration.

Of course, every appeal to procure artificial abortion was resisted, and finally nature kindly interfered and brought about the hoped-for event, whereupon although the gastric trouble lost its aggravated intensity and persistency, it still continued.

While the fœtus remained *in utero*, oxalate of cerium, ingluvin, scale pepsin (Jensen's), belladonna, aconite, aconite and belladonna combined, gelsemium, bromide of potassium, carbolic acid, bromocaffeine, and a number of other drugs of more or less repute, were administered with a little apparent advantage from belladonna, oxalate of cerium, and carbolic acid; belladonna was frequently repeated, and carbolic acid given in as large doses as was deemed advisable or safe.

Only the one article of food was tolerated. Oxalate of cerium (which I had very generally found serviceable) exhibited in small or large doses, at long or short intervals, exercised absolutely no effect whatever. Reflecting that the condition of the stomach must be essentially that of the bowels in catarrhal diarrhœa and dysentery, and reasoning that what had been effectual in the one must *à priori* be of some service in the other, salol was prescribed in doses of one and a half grains, repeated at intervals of three hours. For three days no other effects were observed than diminished frequency and difficulty of the effort. Restlessness and sleeplessness vanished, better tolerance for milk was acquired. In the following week the dose was increased to three grains, exhibited thrice daily; result, cessation of vomiting, tranquillity of nervous system, and composure of mind; however, an attempt to take solid food would frequently result in its rejection. Milk is now taken without unpleasant consequences, and some portions of solid nutrient material are retained and undergo perfect digestion; a feat that has not been accomplished for more than three years.

From the foregoing it may fairly be concluded that salol may check fermentative action. I have also given it in two cases of pregnancy with like satisfactory results.

CASE III.—Mrs. M., in the eighth month, had been vomiting occasionally through the day, but more particularly and frequently after going to bed at nights, for two months. Whenever the body assumed the recumbent posture the acid contents of the stomach would well up into the throat and the regurgitation-like vomiting would last sometimes for an hour before final subsidence. No other spells during night; no morning nausea or gastric irritability manifested. Salol in two-grain doses was directed to be taken three times a day. In a short time there was marked improvement, the annoyance during the day ceased almost at once. In the course of a week the evening disturbance ceased to recur. The case is still under observation. I am told that a single three-grain powder answers for the entire day.

CASE IV.—The other case of this class was in the seventh month of pregnancy, and was not so much annoyed by acid vomiting as by sourness and heartburn, with swelling and hardness of epigastrium. In this, as in the previous instance, the desired result followed on the administration of the medicine.

To sum up, wherever there is indigestion characterized by acid and gaseous eructations or putrefactive changes, or gastric or intestinal catarrh from fermentation, salol is of value. In the indigestion of childhood, from over-feeding or indulgence in indigestible food, where there is a heavily loaded tongue and fetid breath, the drug may be used with good effect.

MEDICAL PROGRESS.

Prophylaxis of Tuberculosis in Prussia.—In the *Berliner klinische Wochenschrift* of May 6, 1889, there appears a notification signed by the President of Police of Berlin, announcing prophylactic regulations against the spread of phthisis—based on Cornet's conclusions—which are at once to be enforced. The notification reads as follows:

By means of Dr. George Cornet's researches regarding the spread of tuberculosis—made under the guidance of Dr. Robert Koch—it has now been proven, beyond doubt, that only the *dried sputum* of consumptives, or those suspected of having the disease, may be injurious to man. The sputum being dried, becomes powdered,

and may then become mixed with the air, thus possibly causing infection of the human body. In order to prevent the spread of tubercle bacilli, which undoubtedly are the cause of tuberculosis, consumptives should be required not to expectorate into a handkerchief, on the floors, or against walls, but to use exclusively a spittoon or spitcup, the latter being especially recommended, as it prevents any soiling of the floor.

Disinfection of the sputum is considered unnecessary by Dr. Cornet, as sublimate does not sterilize it, and carbolic acid is only valuable when used with great precaution. The spitting-cups should be washed in boiling water and their contents thrown into drains. Spittoons containing sand or sawdust should not be used, as they only facilitate the drying and pulverization of the sputa. A small amount of water should always be kept in the spitcup.

On the ground of public health, it is directed by the President of the Police Board that the following regulations shall in future always be enforced in private institutions, insane asylums (as among the insane tuberculosis is frequently observed), and by practitioners to whose care consumptives are committed:

1. Unquestionable consumptives are to be isolated, as far as possible, from patients suffering from other diseases.

2. All patients suffering from this disease, as well as those in whom the disease is suspected, are hereby required to expectorate into spitcups containing a small quantity of water. These vessels are to be washed out with boiling water at least once a day and their contents to be emptied into the drain. Any soiling of the floors, walls, beds, etc., should be immediately cleansed with boiling water, or by other equally effective measures. Soiled clothing and bedding should also be boiled.

3. Beds, mattresses, quilts, etc., as well as all other utensils and furniture used by the patients, must be disinfected in accordance with the police regulations of February 7, 1887, regarding contagious diseases. Articles that cannot be disinfected by boiling must be brought to the City Disinfecting Institute and there undergo thorough disinfection.

4. The rooms occupied by consumptives must, after their death, be disinfected in accordance with the regulations referred to in the preceding paragraph.

Salol as a Dressing.—At the last meeting of the Hunterian Society of London MR. CORNER exhibited a series of cases illustrative of the antiseptic power of salol (salicylate of phenol) as a dressing for wounds, after the part had been rendered aseptic by a 1 in 20 solution of carbolic acid. Salol has a pleasant aromatic odor, can be used freely without fear of irritation or poisoning, is absorbent of moisture, and whilst drying forms a hard but friable covering. It prevents putrefaction, but does not destroy it when established. It has been used in increasing frequency for several years at the Poplar Hospital, and with excellent results in compound fractures and dislocations, also as a dressing in amputations, minor and major, and in compound comminuted fracture of the skull.

The first case shown was a compound comminuted depressed fracture of the frontal bone, in which the bone was elevated, and some spicules removed, the wound being afterward washed with 1 in 20 carbolic acid, the opening filled with salol, and a drainage-tube inserted. The dressing was undisturbed for fourteen days, remained sweet, and the wound healed on the twenty-sixth day. The temperature remained from the first under 100°.

A second case treated in January, 1889, was a compound fracture of the olecranon, head of radius, and humerus, opening the elbow-joint, with considerable damage to the soft parts, the elbow having been crushed by the passage of a railway engine over it. The olecranon was split and drawn up, causing serious tension of skin, and necessitating removal of both portions. The antiseptic treatment and dressing were the same as in the previous case, but required changing after four hours and again next day, in consequence of oozing through; the parts were then left undisturbed for thirty days. The temperature went up the day after the injury, and remained about 101° F. for three days, 100° F. for two days, then became normal.

Two other cases were shown, one a crushed compound fracture of the finger done up twenty-one days before, and not exposed since, there having been neither pain nor elevation of temperature; the other was a compound fracture of the first phalanx of the finger, dressed at the time of the accident, and undisturbed for a month, when it was found perfectly healed. It was pointed out that this was the common experience in such cases, and that even if gangrene followed, the parts remained sweet.—*The British Med. Journal*, May 4, 1889.

Incontinence of Urine in Children.—DR. DESCROIZILLES, in an article on the subject of incontinence of urine in children, says that although the disorder is frequently of nervous origin, it also often accompanies constitutional weakness, and the strict application of hygienic and dietetic principles will frequently cause complete cure. There are many cases where further treatment becomes necessary. Descroizilles has tried various remedies, and states that he has found the following formulæ to be most efficacious:

I.

℞.—Extract of belladonna . . 6 grains.
Powdered gum arabic }
Powdered marshmallow } . āā q. s.—M.

Make into forty pills. One to fifteen to be taken daily, according to the severity of the case.

II.

℞.—Syrup of belladonna . . . ℥ij.
Syrup of tolu }
Syrup of marshmallow } . āā ℥j.—M.

A half teaspoonful two or eight times a day.

III.

℞.—Atropine . . . . . ¼ grain.
White sugar . . . . . ℥iij.—M.

Make into forty powders. Two to four to be taken daily.

IV.

℞.—Bromide of potassium . . . ℥j ss.
Linden flower water . . . ℥ij.
Syrup of sugar }
Syrup of bitter orange-peel } āā ℥j.—M.

A half teaspoonful one to four times a day.

V.

℞.—Sulphate of strychnine . . 2 grains.
Syrup of sugar . . . . ℥vj.
Water . . . . . ℥ij.—M.

A half teaspoonful one to twenty times a day.

Bromide of potassium is also useful in four-grain doses, given one to four times a day.—*Rev. Gén. de Clinique*, April 18, 1889.

On Ehrlich's Diagnostic Sign of Enteric Fever. — DR. HOWARD TAYLOR, House Physician to the London Hospital, says that the attention of Dr. Sansom, of London, was drawn to the subject of Ehrlich's test for enteric fever, whilst attending the Congress of American Physicians and Surgeons at Washington last year. On his return to England he requested Dr. Taylor to investigate the test, which is as follows:

Ehrlich states that the urine of patients suffering from typhoid fever gives a reaction—with one of the aniline derivates—different from that of normal urine, or of the urine of patients suffering from other diseases. Ehrlich's tests are as follows: *A*, a saturated solution of sulphanilic acid in dilute (1 in 20) hydrochloric acid; *B*, a five per cent. solution of sodic nitrate in distilled water. (Both of these solutions must be fresh, especially the latter, which cannot be depended on for more than a week at the longest. When mixed, of course, a solution of sulphanilic acid containing free nitrous acid is produced, which is the actual test solution; but on account of the extreme instability of the latter the two solutions must be mixed fresh at each testing.) In using the test, about twenty-five parts of *A* are added to one part of *B*. Mix with this an equal bulk of urine to be examined, and render alkaline with strong ammonia.

With normal urine the change will only be a deepening of color into a sherry or vinegar-brown. In conditions of pyrexia other than typhoid fever the color also deepens, but when the test is applied to the urine of a patient suffering from enteric fever the color rapidly becomes red, the tint varying from ruby red to that of a deep port-wine color. On shaking the test tube a froth is produced which has a delicate pink color which is very characteristic.

From the result of Dr. Taylor's experiments with this test, which are given at length in the *Lancet* of May 4, 1889, he concludes that the absence of the reaction is practically a proof positive that the case is not one of enterica (provided that the disease has lasted for six days or more). Its presence suggests—but does not prove—that the case is one of typhoid; the probability being greater the deeper the tint produced. And as the other diseases in which it occurs least rarely are not those which most closely resemble typhoid fever, but the reverse, the significance of these exceptions is very greatly diminished.

Renal Surgery.—The progress of abdominal surgery has specially been marked of late by the increasing number of records of operations on the kidney. Since MR. THOMAS SMITH, twenty years ago, advocated the removal of a renal calculus by operation, and Prof. Simon proved, after making a series of experiments on dogs, that the removal of one kidney did not necessarily produce acute or chronic disease of its fellow, a whole series of operations on the kidney have come into vogue. These are nephrorrhaphy, or the sewing up of a floating kidney by its capsule to the parietes; nephrotomy, or incision into the kidney; nephro-lithotomy, or removal of a renal calculus by nephrotomy; and, lastly, nephrectomy, or removal of the kidney entire. Notwithstanding the truth of Simon's theories, and the encouraging results claimed by several surgeons, nephrectomy must still be considered a very serious undertaking.

There is a great difference of opinion amongst the few really experienced operators as to the right manner of performing nephrectomy. Some, like Mr. Lucas, advocate the lumbar, some, like Mr. Thornton, the abdominal incision. An instructive discussion between these authorities took place on the reading of Mr. Knowsley Thornton's paper on the subject, at the meeting of the Royal Medical and Chirurgical Society on April 9th. The choice of incision, however, is apparently of no essential import, depending rather on the previous experience of the surgeon in abdominal or lumbar sections, as they may conveniently be termed, for tumors, colotomy, etc. Far more important is the question of ascertaining the state of the opposite kidney. Mr. Lucas considered it necessary to estimate for some time the amount of urea excreted daily. If that were found to be less than half the normal quantity, then nephrectomy, he maintained, would be a very serious operation. To this reasonable observation, Mr. Thornton opposed an equally reasonable theory, which superficial thinkers are apt to overlook. If a large suppurating kidney, for example, be treated medically, not surgically, the labor thrown upon its fellow would be possibly greater than that entailed by the operation. Mr. Thornton also quoted one of his cases where both kidneys were diseased, yet when one containing twenty pints of pus was removed, the operation was borne very well.

To form anything like a correct estimate of the excreting power of the healthy organ in cases where the diseased kidney is not absolutely obstructed, is after all very difficult in actual practice. Dr. Tuchmann's ureter forceps, for temporarily blocking the orifice of one ureter for a time, may prove of service, but many find them difficult to apply. Catheterization of the ureter, practised by Newman, of Glasgow, and others, requires much special training.

Lastly, physicians, physiologists, and chemists have possibly more to discover as to the import of each constituent of the urine. As yet, much in respect to calculating the powers of a healthy kidney when its fellow is diseased, is theoretical or empirical. Lastly, renal surgery must for a long time remain in the hands of men well experienced in less severe or better understood operations performed in the same neighborhood.—*The British Med. Journal*, May 4, 1889.

Cancer of the Cervix Uteri.—Total extirpation is a difficult and serious operation. Supravaginal amputation of the cervix is somewhat less difficult, at least to operators not accustomed to surgical manipulations in the neighborhood of the female organs. The after-results of either operation when performed for cancer deserve close observation and accurate record. Should it be proved that cancer of the cervix naturally advances upward or recurs, after amputation of the affected part, in the uterus, the necessity for total extirpation would become evident. An

English authority, Dr. John Williams, maintains that the disease does not tend to spread upward from the cervix, but rather laterally toward the broad ligaments and vault of the vagina. Recurrence after amputation takes place, as a rule, in the neighboring connective tissue, and but rarely in the stump. Hence that authority's preference for supravaginal amputation of the cervix. The Germans are mostly opposed to this practice. Dr. Abel, after examing seven uteri extirpated by Prof. Landau for cancer of the cervix, found malignant degeneration of the endometrium in all. Dr. Fränkel examined six cancerous uteri, and found that, whilst the cervix was cancerous, the uterus was affected with glandular and interstitial endometritis. In other words, the endometrium was not cancerous. On the ground of the general pathological changes which he detected, he nevertheless advocated total extirpation of the uterus. His argument, in this respect, appears as weak as Dr. Abel's is strong. If the endometrium is merely inflamed, removal of the irritating cancerous deposits in the cervix ought to be, so far, sufficient. Dr. Saurenhaus, working in Prof. Olshausen's wards, also found that the changes in the endometrium, in cervical cancer, were non-malignant. Dr. Theim, of Kottbus, after practical observation, came to the same inconsistent conclusion as Dr. Fritsh. He discovered changes in the endometrium, which he held to be inflammatory, not malignant, yet insisted that total extirpation was demanded in cancer of the cervix whenever that severe proceeding was practically feasible.

Consistency in principles as applied to the results of observation, therefore, rests with Dr. Abel and Dr. John Williams; unfortunately, their conclusions are diametrically opposite. We need more observations on the condition of the endometrium in cancer of the cervix, and more records of after-histories where either of the abovementioned operations have been undertaken with success. —*The British Med. Journ.*, May 4, 1889.

Treatment of Erysipelas with Alcohol.—BEHREND states that he has found absolute alcohol to be an active poison to the micrococcus of erysipelas. He cites numerous cases where thorough washing of the affected parts, three or four times a day, with absolute alcohol, produced complete recovery in less than a week. The micrococci in every case disappeared almost immediately.—*Centralbl. für klin. Med.*, April 20, 1889.

Uralium, a New Hypnotic.—DR. G. POPPÉ, of Bologna, recently presented the Medico-chirurgical Society of that city with a monograph on uralium, a new hypnotic, being a composition of chloral and urethan. Poppé claims that it is both safe and efficient, and strongly recommends it in cases of insomnia of hysterical origin or cardiac trouble.—*Gaz. degli Ospitali*, Feb. 4, 1889.

Intra-pleural Injection of Naphthol in Purulent Pleuritis.—PROF. BOUCHARD has recently used intra-pleural injections of naphthol with marked success in two cases of severe purulent pleuritis, doing away with the necessity for operation for the empyema. He injected twice daily 30 to 60 ♏ of the following solution:

Naphthol	℥jss.
Alcohol	f ℥j.
Distilled water . .	q. s. ad f ℥iijss.—M.

The quantity of naphthol injected was, therefore, two to four grains daily. As soon as the solution is injected the naphthol is freed, but is again partly dissolved in the exudation, and sterilizes the contents of the pleura. No unpleasant symptoms were observed to follow its use. —*Wiener med. Presse*, April 28, 1889.

Potatoes as a Substitute for Laparotomy.—The *Canadian Practitioner* of May 1, 1889, quotes the following from the *International Journal of Surgery*. At a meeting of the Imperial Society of Physicians in Vienna, DR. SALZER reported a communication from Dr. Cameron, of Glasgow, upon the "potato cure" first recommended by the Scotch observer. Dr. Cameron has used this plan of treatment in several cases of ingestion of large foreign bodies with gratifying success. Salzer has also had an opportunity to try the potato cure in the case of a boy who had swallowed a brass weight of twenty grammes. Potatoes were fed to the child cooked in a variety of manners, so as to encourage his appetite. He took them willingly. After five days the brass weight was compelled to retreat, overwhelmed by the constant accessions of reinforcements from above, and passed out, leaving the potatoes in possession of the field. In the same manner he treated the ingestion of a set of artificial teeth, while in another case a scarf-pin proved no match for its farinaceous antagonist. Dr. Salzer believes that this form of treatment will subserve a useful purpose in many cases in which, up to now, gastrotomy appeared to be the only form of relief available. He also advised the members to place no trust in sauer-kraut, which has been recommended for the same purpose. Dr. Hochenegg related the case of a boy who had swallowed a nail six ctm. long in 1884, and had been treated by gastrotomy. He had swallowed a similar nail two years later, when the potato cure had proved successful. Dr. Billroth spoke of the difficulty which exists in the removal of foreign bodies by laparotomy, and was strongly in favor of the potato cure.

Uncontrollable Vomiting of Pregnancy.—Few medical subjects can be of higher interest to the practitioner than this fortunately rare condition. DR. STOCKER, of Lucerne, has recently contributed an instructive case to the *Centralblatt für Gynäkologie*, No. 16, 1889. The patient married when 21 years of age, but her husband died a year afterward, and she had not then become pregnant. When 30 years old she married again; nine months later she was pregnant. At the fifth week of gestation, morning sickness set in. After the seventh week the vomiting became constant, and continued, when the patient was nourished by enemata alone. Emaciation progressed with rapidity. At the fourteenth week abortion was induced by means of laminaria tents, but great difficulty was experienced in getting the tents through the os internum. Recovery was rapid. Next year the patient again became pregnant. The vomiting began at the fourth week. At the twelfth week, induction of abortion was attempted, but the same difficulty was experienced in passing tents beyond the internal os. The ovum was ultimately brought away by intra-uterine injections of hot water. The vomiting then ceased. About a year and a half later the third pregnancy began. In the fifth week the uncontrollable vomiting set in. Copeman's treatment (dilatation of the whole cervical canal), caus-

tics applied to the os, and the internal administration of bromine and cocaine all proved unavailing. Induction of abortion was, therefore, attempted by intra-uterine injection. There was great resistance to the introduction of the catheter at the os internum. No pains set in, so next day the injection was repeated. The waters escaped, but no pains occurred. Then a laminaria tent was introduced. Directly the internal os was dilated the sickness ceased. The ovum and membranes were extracted manually. No albuminuria nor other evidence of visceral disease existed in this case. An exhaustive clinical and scientific monograph on the "Uncontrollable Vomiting of Pregnancy," by Dr. Graily Hewitt, is to be found in the twenty-sixth volume of the *Transactions of the Obstetrical Society of London*. The discussion, by eminent obstetricians, is highly instructive.—*The British Med. Journal*, May 4, 1889.

Influence of Massage upon the Secretion of Urine.—DR. A. BUM (*Centralbl. für Chir.*, April 27, 1889) has been recently investigating the influence of massage upon the secretion of urine, and for this purpose has subjected a large number of dogs to vigorous treatments of massage. These novel experiments have showed him, however, that massage of the lower, or rather hind, extremities, materially increased the secretion of urine. This occurred in every case. Bum explains this action by the influence of massage upon the venous circulation. He confidently states that this method of treatment will undoubtedly become a valuable therapeutic agent.

The Antiseptic Properties of Sulphuric Acid Gas.—DRS. DUBIEF and J. BRUHL have recently conducted a series of investigations regarding the germicide properties of certain gases, especially of sulphuric acid gas. They have come to the following conclusions:

1. Sulphuric acid gas kills all germs with which it comes in contact in the air.
2. The action of the gas is the same when saturated with steam.
3. Sulphuric acid is a powerful antiseptic.
4. The dry fumes are quicker in action than the aqueous vapors of the gas.—*Gaz. hebd. de Méd. et de Chir.*, April 26, 1889.

Dangers of Chloroform in Laparotomy.—PROFESSOR ZWEIFEL, of Berlin, has remarked several times that pneumonia has occurred after laparotomy has been performed under chloroform, either at night or on dark days when gas had to be used. In some cases, which were done in a small, badly ventilated room, where a good many bystanders were present, and two or three Argand gas-burners were in use, a peculiar cloud of partly decomposed chloroform vapor was very noticeable, not only to the eye, but by the effects produced on the respiratory organs of the operator and his assistants. When ether was used instead of chloroform these effects were not observed. Pending the establishment of the electric light, Professor Zweifel commences with a mixture of alcohol, chloroform, and ether alone, the patient being put under the influence of this in another room, ether being subsequently used during the operation.—*Lancet*, May 4, 1889.

The Local Treatment of Diphtheria.—The question of a purely local treatment of diphtheria has been agitating the minds of many practitioners of late. The existence of the bacillus of croup and diphtheria, first discovered by Hoeffler, is now accepted by the great majority of physicians, and the existence of such a germ immediately calls for its speedy extermination at the seat of its growth, both for curative as well as prophylactic reasons. With this method of treatment in view we are confronted by a long list of antiseptics of various merits. To facilitate a proper conception of their relative value, DR. KOCH has prepared a table, showing the minimum strengths of solutions required to insure disinfection. These are quoted by DR. FERDINAND FRUHWALD in the *Wiener klinisch. Wochenschr.*, April 25, 1889.

	Marked decrease of the growth of the bacillus	Total arrest of the growth of the bacillus
	occurs in a solution of:	
Bichloride of mercury	1 to 1,160,000	1 to 300,000
Oil of mustard	1 to 330,000	1 to 33,000
Allyl alcohol	1 to 167,000	
Arsenite of potassium	1 to 100,000	1 to 10,000
Thymol	1 to 80,000	
Oil of turpentine	1 to 75,000	
Hydrocyanic acid	1 to 40,000	1 to 8000
Oil of peppermint	1 to 33,000	
Oil of cloves	1 to 5000	
Green or soft soap	1 to 5000	1 to 1000
Iodine	1 to 5000	
Hydrochloric acid	1 to 2500	1 to 1700
Boric acid	1 to 1250	1 to 800
Permanganate of potash	1 to 1400	
Salicylic acid	1 to 3300	1 to 1500
Benzoic acid	1 to 2000	
Carbolic acid	1 to 1250	1 to 850
Camphor	1 to 2500	over 1 to 2500
Quinine	1 to 830	1 to 625
Alcohol	1 to 100	1 to 125
Salt	1 to 64	

Many of the above antiseptics are very slow in action, and many are unfitted for such uses as spraying the mouth and throat, and would not, therefore, be of practical value in the local treatment of diphtheria. Our reader will, therefore, be able to gain more from the following table, which was compiled by DR. MILLER, of Berlin.

Antiseptic.	Concentration.	Time necessary for sterilization of mouth and throat.
Salicylic acid	1 to 100	¼ minute.
Benzoic acid	1 to 100	¼ "
Salicylic acid	1 to 200	½ "
Bichloride of mercury	1 to 2500	½ to ¾ "
Benzoic acid	1 to 200	1 to 2 minutes.
Thymol	1 to 1500	2 to 4 "
Bichloride of mercury	1 to 5000	2 to 5 "
Carbolic acid	1 to 100	10 to 15 "
Oil of peppermint		10 to 15 "
Oil of wintergreen		over 15 "
Lime water	no action.	

The majority of authorities seem to agree that the use of the spray, by means of an anatomizer, is preferable to the practice of "painting" the throat, as the latter method may frequently result in serious injury to the mucous membrane.

Precocious Menstruation; Amenorrhœa with Convulsions.—A case of remarkably precocious menstruation is reported

by DR. DIAMANT, of Vienna.[1] When a twelvemonth old, the child had cut all her milk teeth. When barely two years of age, the first period was observed. It lasted four days, and recurred with regularity till the child was six years old. At that age her breasts, loins, and pelvis were of the adult type: the axilla and pubes were thickly covered with hair. Suddenly the period ceased, and for six months after the child had completed her sixth year epileptiform convulsions came on during sleep, at every date when the catamenia should have appeared. The fits sometimes lasted three-quarters of an hour, and increased in number every month. They were continuing when the case was reported, the child being then 6½ years old.—*The British Med. Journal*, May 4, 1889.

Digestive Tablets.—*L'Abeille Médicale*, of April 27, 1889, gives the two following "antifermentative" formulas as prescribed by DR. DUJARDIN-BEAUMETZ:

I.

℞.—Salicylate of bismuth
Magnesia
Bicarbonate of soda } . . . āā ʒijss.

Make into thirty powders or tablets.

II.

℞.—Salicylate of bismuth
Naphthol
Magnesia } . . . āā ʒijss.

Make into thirty powders or tablets.

Dose: One tablet at breakfast and one at dinner. They are especially valuable in dilatation of the stomach caused by fermentation.

Menthol in the Treatment of Laryngeal Tuberculosis.—The *Prager med. Wochenschr.*, April 17, 1889, speaks of DR. A. J. OSSENDOWSKI'S treatment of laryngeal tuberculosis with ten to twenty per cent. solution of menthol. After carefully observing its action in a number of cases, the following conclusions were arrived at:

1. Menthol seems to act as a good anodyne in this disease.

2. It is of considerable value in the local treatment of laryngeal tuberculosis.

3. To begin with, a solution not stronger than ten per cent. should be used, which may be advantageously increased. Stronger solutions (forty to fifty per cent.) cause severe irritation.

Laxative Powder.—DR. DUJARDIN-BEAUMETZ recommends the following as a pleasant and reliable laxative:

℞.—Powdered senna pods (treated with alcohol)
Sublimate of sulphur } . āā ʒjss.
Powdered fennel
Powdered star aniseed } . . āā grs. 48.
Pulverized cream of tartar . . grs. 31.
Powdered liquorice . . . . ʒij.
Powdered sugar . . . . . ʒvjss.

Dose: One dessertspoonful of the powder in a half wineglassful of water at night.—*L'Abeille Médicale*, April 27, 1889.

[1] Internat. klin. Rundschau, 1888, No. 40.

Mercurial Vapor in Croup.—DR. ROTHE, of Altenburg, relates (*Memorabilien*, 6 Heft, 1889) two cases of apparently non-membranous croup in which, when the laryngeal stenosis became so great as to oblige him to propose tracheotomy, the inhalation of the vapor of calomel produced such a remarkable change for the better that he was able to dispense altogether with the operation. He rigged up a sort of tent over the child's head and vaporized thirty grains of calomel on a metal plate over a spirit-lamp. This produced a marked improvement in the breathing in a few minutes, and shortly afterward the child fell asleep bathed in perspiration. The inhalation was ordered to be repeated every two or three hours, but with smaller doses of calomel; also, whenever a severe attack of dyspnœa came on, an extra inhalation was given, and never failed to produce the desired effect. Though the inhalations were continued for a couple of days there was no salivation or diarrhœa, but the vapor set up some little irritation about the eyes, which made the little patients rather fractious; otherwise no unpleasant effects were produced.—*Lancet*, April 27, 1889.

Opium as a Hemostatic.—A case of severe bronchial hemorrhage came to the notice of DR. HUCHARD, which, in spite of most active treatment, had continued for some time. He used ergot, injections of ergotine, sulphate of quinine, ipecac, and other remedies without avail. Finally he tried injections of morphine, four or five times daily, in $\frac{1}{12}$ grain doses. The hemorrhages ceased entirely after the first day of treatment. Dr. Huchard has since tried the drug in cases of uterine hemorrhage and too copious menstruation, always with marked success.—*Journal de Méd. de Paris*, April 21, 1889.

Surgery of the Spinal Cord.—DR. LAMPIASI tells of the case of a man, aged twenty-eight, who was thrown from his horse, which fell on him. There was sensory and motor paralysis, with loss of control of the bladder and rectum. There was some prominence of the twelfth dorsal vertebra. An incision was made over the spinous process, and the bone was exposed. There was fracture of the left superior articular process and of the left transverse process of the twelfth vertebra, with luxation backward of the right upper articular process so as to override the lower articular facet of the vertebra above. The two superior processes of the twelfth vertebra were resected, and the dislocation reduced. There was no improvement in the symptoms, and death occurred six days after the operation. At the *post-mortem* examination there was found rupture of the lateral ligaments, detachment of the intervertebral disk of the twelfth vertebra, which remained adherent to the eleventh, and projected three-quarters of an inch into the spinal canal, where it pressed on the front part of the cord.—*The British Med. Journal*, May 4, 1889.

Local Application of Pepsin.—DR. H. B. DOUGLAS has found pepsin a most valuable application for indolent ulcers. It gives a healthy appearance to the sore, and promotes rapid healing. He uses it with lanolin in the following combination:

℞.—Pepsin . . . . . 48 grains.
Lanolin . . . . . ʒjv.—M.

—*Revue de Thèr. Méd.-chir.*, May 1, 1889.

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SO-CALLED WEIL'S DISEASE.

IN 1886 Prof. Weil, of Heidelberg, reported four cases which he regarded as examples of a hitherto unrecognized disease. The patients were all young, previously vigorous, healthy males, and the illness attacked them during the months of June and July. The symptoms from which Weil inferred the presence of a new disease were acute fever attended with grave nervous symptoms, such as cephalalgia, vertigo, disturbed sleep, delirium, and somnolence; with swelling of the spleen and liver, icterus, albuminuria, and signs of disordered digestion, such as anorexia, coated tongue, constipation, and diarrhœa. In from five to eight days the icterus, the swelling of the spleen and liver, and the albuminuria gradually disappeared, and the temperature became normal. The disease, however, was not at an end, for, in three of the four cases, after an afebrile interval of from one to seven days, the temperature again rose and another febrile attack of from five to six days' duration set in. The patients then entered upon a stage of protracted convalescence, and were not discharged from the hospital until from four to ten weeks after their admission.

These are the main symptomatic features of four cases ending in recovery, of which the imperfect study has led to the hasty assumption of a new disease. The report of a single case of the commonest disease is incomplete, for scientific purposes, unless details of a necropsy are given. How much more is this statement applicable to obscure cases of disease, and especially to those which are supposed to represent an affection that has escaped the observation of the entire medical world! The study of symptoms is of the utmost importance, but it must not be forgotten that, like the human countenance, they may vary within wide limits, while the pathological ego which they represent remains one and the same. Intercurrent and complicating affections, like conflicting emotions, may so distort the normal expression of a disease that its recognition is only possible to its most intimate acquaintances. From this point of view a change of type in disease would correspond to the permanent change of expression produced by age.

Such thoughts as these, when expressed, are at once recognized as familiar to all, but the tendency of the familiar to become contemptible is as strong as chemical affinity, and finds expression in one of the pithiest of our proverbs.

To return to the question of Weil's disease, so called. Is there such a disease? This question has been ably discussed by Ricklin, in four recent numbers of the *Gazette Médicale de Paris*, and by Fraenkel, in the *Deutsche medicinische Wochenschrift*, 1889, No. 9. In these two able contributions may be found a complete *résumé* of the literature of "Weil's disease."

The following reasons for regarding this affection as an independent one have been advanced. From acute yellow atrophy of the liver it is distinguished by the swelling of that viscus, by the high temperature, by the simultaneous swelling of the spleen, by the involvement of the kidneys, and by the absence of hemorrhage; and from catarrhal jaundice by the higher range of temperature and the implication of the spleen, liver, and kidneys. It resembles relapsing fever in many respects, especially the variety called by Griesinger bilious typhoid. This disease, however, never exists in sporadic form, and hence may be excluded even in the absence of the important negative evidence that would have been furnished by an examination of the blood for the spirillum of Obermeier. The concurrence of jaundice, apyretic intervals, and distinct relapses, suffices to exclude the view that the affection is an abortive typhoid complicated with jaundice. It is admitted, without further parley, that the affection belongs to none of these, nor to any similar, categories. In the absence of further information, we confess ourselves unable to classify the cases reported by Weil.

Happily this is forthcoming, and of the kind imperatively demanded. In the short time that has elapsed since Weil's publication, a number of similar cases have been reported, several of which were fatal and were examined post-mortem.

In 1887, under the title of "Acute Parenchymatosis," AUFRECHT reported two cases of acute fever with jaundice and albuminuria, which, after a rapid course, in which brain symptoms, such as somnolence and convulsions, were prominent, ended in death. In both, necropsies were held. In one the liver was small; in the other, enlarged. In the latter the cellular elements of the liver and kidney were filled with strongly refracting granules, which Aufrecht, without proving his supposition by appropriate staining methods, regarded as micrococci.

NAUWERCK examined, post-mortem, two cases of fatal febrile icterus, in one of which death occurred within forty-eight hours. In this rapidly fatal case the liver was not enlarged. In the intestine were small, superficial ulcerations and enlargement of solitary follicles and Peyer's patches. An intestinal mycosis was supposed to be the fundamental process, inasmuch as the mucous membrane contained small foci of cellular infiltration, in part necrotic, in the immediate neighborhood of which accumulations of bacilli were found. The parenchyma of the liver and kidneys presented a high degree of albuminous, fatty, and necrotic degeneration. In the second case, which lasted seventeen days, the intestine was perfectly sound, while the lesions of the liver and kidneys were identical with those of the first. Nauwerck concludes, from these examinations, that anatomical and etiological unity are both wanting in "Weil's disease."

The third case of this affection in which a necropsy was held was reported quite recently by BRODOWSKI and DUNIN. The patient, a male, thirty-six years of age, besides febrile icterus and swelling of the liver and spleen, presented a symptom that has been wanting in all the other cases reported, viz., swelling of all the superficial lymph-glands. They were tender on pressure and enlarged, some of them to the size of walnuts. On section, these, as well as the enlarged mesenteric and bronchial glands, were soft and of a reddish-gray color. In the liver gray spots and nodules could be seen with the naked eye, which corresponded to round-celled infiltrations of the acini and their neighborhood. The cells were in a well-marked state of cloudy swelling. Analogous appearances were observed in the kidneys, and the interstitial tissue of the lungs was infiltrated with cells. The spleen was five times the normal size. No definite conclusion could be drawn from the bacteriological investigation.

From the reports of these necropsies it is evident: 1. That the post-mortem appearances were, in no single case, identical with those of any other; and, 2. That the only lesion common to all the cases—the cloudy swelling of the liver and spleen, with small-celled infiltration of the connective-tissue of these glands—was in nowise typical. The same appearances are characteristic of a number of infectious diseases, such as scarlatina, diphtheria, typhoid, and especially septic infection.

The question next in natural order is whether any facts support the view that sepsis may give rise to the symptoms described by Weil, and the answer is most decidedly in the affirmative. Since 1876, FIEDLER has observed thirteen cases of febrile icterus, all of which recovered. Supposing the symptoms of Weil's cases to be typical of any morbid process, many of Fiedler's cases presented marked aberrations from this type. For instance, swelling of the spleen and liver and albuminuria were not always present, and in only two cases was there a distinct relapse. The only symptoms invariably present were fever, icterus, and pain in the calves, which latter Fiedler regards as pathognomonic. The most remarkable etiological fact in connection with these cases is that out of the twelve males among them, nine were butchers who were actively at work in the Dresden abattoir until the time of their seizure. Two others attributed their attack to sausages which they had eaten. Most of the cases, like those of Weil, occurred during summer.

The most remarkable case of this sort yet reported was observed by FRAENKEL, and the evidence it brings to the support of the septic theory of "Weil's disease" is of the strongest kind. The patient was a medical student who, while fencing, received a wound of the forehead. In addition, there was a slight excoriation in the right temporal region. The wound was dressed antiseptically and covered with a bandage, which, however, did not protect the excoriation. On his way home the patient wore a hat which had been kept in the dissecting-room. The wound was received on the third of August. On the fifth there was a chill followed by high fever, and on the seventh by an erysipelatous redness around the excoriated spot. On the tenth there was pronounced icterus, and, without going into further details, all

the symptoms of Weil's cases, including the apyretic interval, the relapse, and the protracted convalescence were well marked. The spirillum of Obermeier was sought for in vain.

Among the widely varying symptoms and post-mortem appearances of the numerous cases of "Weil's disease" now on record there is nothing distinctive of a hitherto unrecognized disease. On the other hand, there is strong evidence that some of them were cases of septic poisoning. In Fraenkel's case, which corresponded in all respects with those described by Weil, the point of septic infection was a wound of the head; and in Fiedler's cases, at least in the nine butchers, the infection may have entered the system in a similar manner, through cuts and abrasions too slight to attract attention, or through the ingestion of decaying meat.

The designation of such manifestations of sepsis as "Weil's disease," while it has served the valuable purpose of directing more special attention to them, is a misnomer. Much more appropriate is the term septic or infectious icterus, proposed by Fraenkel.

HYSTERIONICA BAYLAHUEN.

THIS plant, which is a native of Chili, has been brought forward in the February 28th number of the *Bulletin Général de Thérapeutique* by Dr. Baillé, and also before him by Cervello, of Valparaiso, as a remedy of very considerable value in gastro-intestinal troubles, such as dysentery, colitis, and flatulence from intestinal dyspepsia. The drug is to be used in the form of an infusion made by adding one part of the plant to five ounces of water, or in the form of the tincture prepared by the maceration of three and a quarter ounces of hysterionica in sixteen ounces of ninety per cent. alcohol during ten days. After this the liquid is to be decanted, the tincture being of an amber color and having an odor of the plant. The dose is fifteen to thirty-five drops.

The conclusions reached by Baillé as to the drug are as follows, after having studied it in each portion of the body *seriatim*. It is an excellent remedy for diarrhœa and acts very well in dysentery of the acute and chronic type and bids fair to replace the balsams in the treatment of maladies of the respiratory passages.

The rather curious statement is made that the tincture will not produce constipation.

In genito-urinary troubles hysterionica is of great value, modifying the secretion of the urine and diminishing the bad odors. It can also be used in collodion as a dressing for ulcers, and seems under these circumstances to act very much like the tincture of benzoin.

TUBERCULOSIS is the most generally diffused of human diseases, and therefore all studies relating to its causation and prevention are of the highest interest. The discovery, in 1882, by Koch, of the bacillus of tubercle, and the causative relation it bears to tuberculosis, have received wide-spread acceptance, and the very recent researches of his pupil, CORNET, upon the dissemination of tubercle bacilli outside of the body have given us information of great use in the prophylaxis of the disease. The Prussian Government, which is never slow to render available the latest researches of science for the benefit of its people, has embodied the practical outcome of the investigations of Cornet in a series of regulations for the prevention of the spread of phthisis, which have been promulgated in an official order which will be found on page 571 of this number of THE NEWS.

Now that the suspension treatment of disease of the spinal cord has come into general use, the danger of its self-application, when alone, should be carefully impressed upon the patient, and the moral can be well pointed by the death of Dr. Vincent, of the Clifton Springs Sanitarium, who was found a few days ago hanging lifeless from the tripod. The indications pointed to the fact that he was experimenting with the tripod with the view of noting the effects of suspension in his own case, and that by some accident he lost control of the rope, and at the same time the chin strap slipped over his mouth and nostrils and suffocated him. According to *The World*, Dr. Sayre had a similar experience several years ago, in the case of a young lady who is supposed to have fainted while in the tripod, and to have been suffocated in a like way.

WE are surprised to read in our usually accurate contemporary, *The Boston Medical and Surgical Journal*, that Dr. Hunter McGuire, of Richmond, Va., had been elected to fill the vacancy in the Chair of Surgery at the Jefferson Medical College, of Philadelphia. The statement is the more curious as Dr. McGuire was not in any way a candidate for the position.

ACCORDING to the *Boston Medical and Surgical Journal*, the Iowa State Board of Health has decided

that Iowa medical colleges, after 1891, shall be required to give a four years' course to secure their graduates admission to practise in the State.

THE American Laryngological Association will hold its eleventh annual Congress at the Arlington Hotel, Washington, on Thursday, Friday, and Saturday of next week, under the presidency of Dr. E. Carroll Morgan, of Washington. We present the programme in full in another column. After adjournment on Saturday, there will be an excursion to Mount Vernon.

THE Pennsylvania State Medical Society holds its thirty-seventh annual session at Pittsburg, on June 4th, 5th, and 6th, under the presidency of Dr. J. B. Murdock, of Pittsburg. The Address in Medicine will be delivered by Dr. J. C. Wilson, of Philadelphia; in Hygiene, by Dr. T. J. Mays, of Philadelphia; in Laryngology, by Dr. W. H. Daly, of Pittsburg; in Surgery, by Dr. J. B. Roberts, of Philadelphia; in Obstetrics, by Dr. Frances N. Baker, of Delaware County; and in Mental Disorders, by Dr. Alice Bennett, of Norristown.

THE Ontario Medical Association will meet at Toronto, on June 5th and 6th.

THE latest mails from Colombo, Ceylon, says the London *Medical Press*, May 1, 1889, bring accounts of a serious outbreak of cholera in the island. Upward of sixty fatal cases had occurred in one township, and the people were in a state of panic.

SOCIETY PROCEEDINGS.

THE AMERICAN SURGICAL ASSOCIATION.

Annual Meeting, held in the Army Medical Museum, Washington, May 14, 15, and 16, 1889.

TUESDAY, MAY 14TH—MORNING SESSION.

The Association was called to order at 11 A.M., by THE PRESIDENT, DR. DAVID W. CHEEVER, of Boston, who then delivered his

ANNUAL ADDRESS.

He believed that we are warranted in saying that the future of surgery is without limit. He deduced this conclusion first from considering what the mind of man has already done; second, from the future possibilities of fields hitherto unknown and unexplored, but now opening up to science, there can be but two limitations —either in the mind of man, or in the subject.

In estimating, then, the limitations of surgery, we find none, except they be set by ourselves. How should they be set? By conservative judgment opposed to rashness. In the list of modern and useful operations as distinguished from those barely justifiable, are the following:

1. To remove growths or foreign bodies from the cavities of the body: Opening the brain, opening the spinal cord; displacement of the upper jaw or of the nose for naso-pharyngeal polypi; cutting into the pharynx from outside the neck, to remove tumors of the tonsil; œsophagotomy for foreign bodies; thyrotomy for growths; gastrotomy for foreign bodies; opening the gall-bladder for the removal of stones; opening the pelvis of the kidney for calculi; supra-pubic cystotomy for calculi and tumors of the bladder; ovariotomy; removal of the diseased uterus or its appendages; laparotomy for gunshot wounds; and for extra-uterine fœtation; excision of the lower part of the rectum for growths.

2. To reach and evacuate inflammatory products: Opening the chest and resecting the ribs for empyema; opening the abdomen for appendicitis, or for chronic peritonitis; opening and drainage of pelvic abscesses; of abscess of the vertebræ; opening of deep abscess of the neck; evacuation and draining abscesses of joints; peri-nephritic abscess and removal of one kidney.

3. To relieve obstruction: Intubation and tracheotomy; gastrostomy, and enterostomy; colotomy; perineal section; herniotomy.

4. To restore continuity: Resection and suture of bowel; resection and union of bone; resection and reunion of nerves; nerve-grafting; reunion of tendons and of muscles.

5. Unclassified procedures: Plastic and osteo-plastic surgery; modifications of orthopedics, including bone sections and excisions; litholapaxy; reduction of dislocation of the hip and of the shoulder by applied anatomy; endoscopy; rhinoscopy and removal of turbinated outgrowths; pathology and removal of adenoids; aseptic wiring of fractures; local anæsthesia in setting fractures; closing of skull wounds by the insertion of buttons of bone.

6. Operations as yet *sub judice* or on trial: Resection of pylorus; resection of cancerous intestine or omentum; removal of the spleen; of large bronchoceles; of the larynx; the pancreas; the prostate gland; the normal ovary; fixation of the kidney, or of the uterus; puncture of the pericardium; opening gangrenous abscesses in the lung; tapping the ventricles of the brain.

Rash statements are to be discounted; rash operations are to be discouraged. The wisdom of our earliest Greek master in analyzing the imperfections of our art holds true to-day: "Ars longa, vita brevis est; occasis fugax, experimentia fallax; judicium difficile." Yet with Bacon came the new light of experiment. In his immortal words: "Recte veritas temporis filia dicitur, non auctoritas." Lean not on authority; the test of truth is time.

MISCELLANEOUS BUSINESS.

The death of Dr. S. W. Gross, of Philadelphia, was reported, and Drs. D. W. Yandell, J. Ewing Mears, and P. S. Conner were appointed a committee to prepare appropriate resolutions.

The Committee on Nominations was announced as consisting of Drs. D. Hayes Agnew, William T. Briggs, Hunter McGuire, John S. Billings, and J. R. Weist.

On motion of Dr. L. McLane Tiffany, the Secretary was requested to wire to Dr. T. G. Richardson, of New Orleans, the senior vice-president, who was prevented by illness from attending the meeting, the regrets of the Association at his absence.

DR. D. W. CHEEVER, of Boston, then reported a case of

SARCOMA OF THE TONSIL; EXCISION.

The patient, a male, æt. fifty-seven, single, for one year had to breathe through the mouth on account of enlargement of the left tonsil. No pain was experienced until November 1, 1888, when he "caught cold" and the tonsil swelled considerably, and became sore and tender, and discharged spontaneously a few days later. At the same time he noticed some enlarged glands in the left neck. The glands gradually increased in size. The tonsil caused no more pain, but there was an increasing sense of fulness behind it, increasing dysphagia, and difficulty in articulation. There was loss of appetite and weight. When he came under observation January 14, 1889, the left tonsil was found to project nearly to the uvula and was as as large as a pullet's egg. There were two glands in the left neck each as large as a horse-chestnut.

The operation was performed January 17, 1889, ether being given, and the patient being in the sitting posture. A gland in front and one behind the sterno-cleido-mastoid muscle were removed. The first incision was semi-lunar, concave upward, marking the boundaries of the digastric triangle. A second incision over the lower jaw at right angles to the middle of the first incision was then made. The mylo-hyoid muscle was now divided and the other tissues pushed to one side. The lower jaw was then sawed in two in front of the masseter muscle. The tumor was pressed out by finger in the mouth, and was found to be covered with a delicate capsule. On puncture a soft material exuded. The tumor and capsule were removed without great difficulty. There was no hemorrhage, and the facial artery and external jugular veins were the only vessels ligatured. The wound in the pharynx was not sewed; the jaw was wired, the external wound in the skin was partially approximated and washed with two per cent. boracic acid solution and dressed with boracic gauze. The wound was dressed daily. Healing took place rapidly with no unfavorable symptoms. On the thirtieth day the wire was removed and the jaw found to be firmly united. Microscopical examination showed the growth to be round-cell sarcoma.

April 27, a second operation was performed for a tumor on the same side of the neck. The throat, however, remains healthy. A large glandular mass was removed from the anterior carotid triangle. This also proved to be a round-cell sarcoma.

DR. D. HAYES AGNEW, of Philadelphia, said that there are several points of interest in connection with sarcoma of the tonsil. Including the case of Dr. Cheever, he thought there are only ten or eleven recorded. A second point is the fact of constant recurrence. He believed that there is only one case on record where return has not taken place. In that case the thermo-cautery was employed. Various operations have been employed—enucleation, the écraseur, the galvano-cautery, the thermo-cautery, and the external method first used by Dr. Cheever. The operation, when undertaken, should be done simply with the view of palliation. The operation from without is confessedly a difficult operation, and while in the hands of experts it probably affords the best opportunity for the removal of all diseased structure, for the general operator some other method would no doubt be better. He had been much struck with the exposure gained by simply slitting the cheek in operations on tumors far back in the throat—as far back as the soft palate. This would probably give as good a chance of success as any other plan of procedure.

DR. A. VANDER VEER, of Albany, said that the first well-marked case of sarcoma of the tonsil that had come under his observation was in a man aged seventy-two years. The tumor had been discovered four months before he saw him. There was a full, round tumor of the tonsil, interfering seriously with deglutition and somewhat with breathing. The patient selected enucleation in preference to the operation from the outside. His intention was to remove all that he could with the tonsillotome, cutting from behind forward, then enucleate with a blunt instrument and use the thermo-cautery. After cutting through the capsule the tonsillotome slipped behind the tonsil and it was completely enucleated. He did not apply the thermo-cautery. The patient had no return of the disease for eight months. The growth then reappeared and rapidly increased in size. Two months later the patient was taken with pneumonia and died in a few days.

DR. P. S. CONNER, of Cincinnati, thought that the statements in reference to the infrequency of sarcoma of the tonsil are hardly correct. He knew of several unreported cases, two of which came under his own observation. One was in a woman aged twenty-six years. The disease was so far advanced that he thought no operation justifiable, and she died a few days later. The second case was a man aged forty years. The tumor was as large as the fist. He operated by slitting the cheek and was able to separate the tumor readily from the capsule with the finger. The operation was done in June. In July he was apparently in excellent condition. The disease began to recur in the latter part of August and grew rapidly, and in October he was found dead in bed, supposed to have committed suicide.

DR. M. H. RICHARDSON, of Boston, some time ago removed a sarcoma of the tonsil by external incision. The enucleation was accomplished with ease, and without opening the pharynx. A year after the operation there had been no return of the disease. This was two years ago, and, as far as he knew, the patient is still living.

DR. CHEEVER said that the operation through the cheek is probably easier and more desirable in some cases, but the operation from the outside leaves less paralysis and less scar. The great dread of these operations was, formerly, the danger of opening the upper part of the alimentary canal and establishing a fistula. This has now been proven to be without foundation. He was inclined to think that the use of sutures in the pharynx or œsophagus would be more dangerous than their omission. The object of these operations is to permit the patients to die easier. It is more comfortable to die with an external tumor than with one pressing upon the larynx or throat, causing starvation or choking.

AFTERNOON SESSION.

DR. CLAUDIUS H. MASTIN, of Mobile, read a paper entitled

HERNIA: A COMPARISON OF THE VARIOUS METHODS ADOPTED FOR ITS RADICAL CURE.

Reference was first made to the great frequency of this condition. The census reports of 1880 show that of the total number of deaths, one in every six hundred was due to hernia, and out of twelve hundred and thirty-six deaths from hernia, one hundred and forty-one occurred in children under one year of age.

The paper concluded with the following remarks:

The ligature of the sac at its neck, with suture of the pillars, of canal and ring, may be considered an established surgical procedure. Still, being a comparatively new operation, a discussion of its merits will be of practical value in leading to further improvements, and with them, permanent success of the operation. With the present lights before us, the most important point in the operation appears to be closing of the neck of the sac as high up as possible, so as effectually to seal up the opening into the abdominal cavity. To do this completely it is necessary that the sac should be carefully separated from the adjacent tissues, and this is not always an easy matter, since oftentimes the true sac is obliterated and a new sac formed in the fibrous tissue, with the vascular and nervous distribution blended in such a manner as to render the dissection most difficult if not impossible. In such a case Macewen's operation could not be performed and it would be impossible to twist the sac as recommended by Mr. Ball. This objection does not obtain in crural and umbilical herniæ; still, since inguinal is the most frequent of the herniæ, it is of importance in them. In the congenital cases it is much easier to separate the sac and hence more possible to do a complete operation; but since in young children, the truss properly applied and long continued until the abdominal parietes have been so developed as to increase the obliquity of the canal, will, in most instances, produce a permanent cure, all operative procedures in children should be considered unwarrantable. In these cases, however, where an imprisoned testicle complicates the condition, the operation is unquestionably proper and the removal of the testicle justifiable, and for the simple reason that the presence of the gland in the canal predisposes to the descent of the hernia.

Since the main point in the success of the operation appears to have been the proper disposal of the sac, it is not astonishing that operators who have given it their attention should have adopted diverse methods, each one of which has the same end in view. Whilst Ball twists it, Macewen tucks it up; Hardee insists upon the importance of inclosing the transversalis fascia with the sac in the ligature; J. D. Bryant splits the pillars on either side and weaves in the sac; Annandale opens the canal, ties the sac, cuts it away and stitches the opening; on the other hand, Stokes opens the sac, and then, stitching the neck, the canal, and the pillars together, he leaves the sac in position; Banks opens the sac, ligates the neck, cuts away the fundus and sutures the pillars; Alexander, of Liverpool, opens the canal, ligates the sac flush with the peritoneum internally, then divides the neck below the ligature, leaving the sac in the canal without suturing the ring; MacCormac advocates this plan, while Buchanan cuts down to the sac, slits it up longitudinally on each side of the cord, divides the front part horizontally, rolls up the upper part, with which he plugs the internal ring, and turns down the lower half to form the tunica vaginalis.

From a comparison of all the methods, it is apparent that no fixed rule of procedure is established, and although the radical operation is a marked improvement in the treatment of hernia, whether free or strangulated, we cannot consider it perfected, because the methods hitherto resorted to have not proved radical in results. The operation is ideally correct, but the question arises, whether, with the uncertainty of success, the risk justifies the operation, especially so if the circumstances of the individual are such that he can content himself with the use of a properly adjusted truss.

DR. M. H. RICHARDSON said that his experience with the operation for the radical cure of hernia had been small. Sufficient time has not elapsed to permit us to say what the ultimate result will be. His preference has been for the invagination of the sac as proposed by Macewen. He did not advocate the operation in trivial cases of hernia. Here he believed that the application of a well-fitting truss is the more conservative and better plan.

DR. D. HAYES AGNEW thought that we had yet to speak with a good deal of reserve as to which is the most successful operation. Sufficient time has not elapsed to enable us to speak positively upon this subject. The operation which seemed to him most applicable is that in which the sac is ligated, pushed into the internal ring, stitched there, and transverse sutures passed across the canal. He thought that the omentum will constitute an important element in the radical cure of hernia. He believed that in all cases of strangulated hernia we are justified in attempting the radical cure. The same is true in those cases of hernia which cannot be controlled by a truss, leaving the patient exposed to great risk.

DR. W. W. DAWSON, of Cincinnati, thought that in cases in which life is not in jeopardy we should approach the operation with a great deal of consideration He had seen very different results from the same operation performed with equal care in cases apparently similar. Where life is in danger, duty impels us to operate, but where the question is one of æsthetics or abridged usefulness, the operation should be approached cautiously.

DR. L. MCLANE TIFFANY, of Baltimore, said that his operations for radical cure in cases of strangulated hernia were more successful than formerly, and attributed this to the fact that he operated now in a more cleanly manner. He thought that no operation for strangulated hernia is complete unless an attempt at radical cure is made. When the hernia is not strangulated, the question arises as to the kind of hernia, the inconvenience that it causes, and the circumstances of the individual. He did not believe that the operation *per se* is likely to be followed by much trouble. The method to be employed must be determined by the peculiarities of the case.

In regard to children, he thought that in congenital hernia, especially where it is probable that the child will have to work for its living, it is the duty of the surgeon to operate. Here it is not necessary to open the peritoneum. A ligature is thrown around the sac above and another lower down, and the intervening portion excised,

forming a tunica vaginalis below and a peritoneal sac above.

DR. D. U. YANDELL, of Louisville, believed that in strangulated hernia the surgeon should attempt the radical cure. This had been his practice and he had used various methods. It is difficult for any one man to decide which is the best operation, but in the course of ten years we shall be able to arrive at some opinion.

DR. J. FORD THOMPSON, of Washington, thought that there is very little difference in the operations. The main point is to get rid of the sac. He thought that suture of the pillars is useless. The operation that he has employed is practically that of McBurney. In strangulated hernia it seemed to him that there must be danger in inverting the sac, as in Macewen's operation. He had seen many cases of hernia in children, but had never been able to adopt the view of Dr. Tiffany. As a rule, if we can keep the intestine reduced, the hernia is cured in a comparatively short time. In some cases of large hernia in children the radical operation is probably justifiable.

DR. W. W. KEEN, of Philadelphia, said that doubtless all agreed that in strangulated hernia no operation is complete without an attempt at radical cure. It was also agreed that in those cases where the hernia is not controlled by a truss and the patient is unable to labor, radical operation is advisable. The tendency at the present time is to extend the limits of the operation beyond these two classes. The presence of hernia is always attended with risk; hence, the tendency at present is to operate on a larger number of cases. In children, if the retentive measures after a thorough trial for a few years fail to effect a cure, he should be inclined to operate.

In very large hernia he should not be inclined to use Macewen's method. The life of the sac is imperilled by separating it. In large hernia a certain amount of preparatory treatment is desirable to accustom the abdominal cavity to the presence of the intestine and thus prevent undue pressure upon the diaphragm and strain upon the sutures. In the more ordinary cases he thought that the operation of McBurney is the best. He should place the operations in the following order: McBurney's, Macewen's, and Ball's.

DR. C. H. MASTIN said that the object of his paper was to elicit discussion as to the best method of operating. He had performed 34 operations for hernia, with 3 deaths. Two of these may be excluded, as the patients were *in extremis* at the time of the operation. This leaves 32 cases with 1 death. Of this number there had been 8 radical cures. One of these cases he had watched for seventeen years. The method employed was after the sac was opened to pass a deep pin through the pillars, with an ordinary twisted suture over it, close the incision, and place the leg on a double-inclined plane. Thirty-one cases have recovered with primary union. He believed that the cure is produced by the dense cicatricial tissue formed in the canal.

DR. J. R. WEIST, of Richmond, Md., had operated on strangulated hernia 41 times. In 30 cases he had attempted to make a radical cure, using a variety of methods. In only 4 cases had he succeeded in keeping the hernia in. A number had remained well for six months to two years, and then the hernia had reappeared as bad as ever.

DR. M. H. RICHARDSON, of Boston, then read a paper on

THE SURGICAL TREATMENT OF GANGRENOUS HERNIA.

The principal question discussed was the relative advantage of immediate excision and suture of the bowel, and the formation of an artificial anus with subsequent closure. The views of various authorities were first quoted. The author then briefly reported the cases coming under his own observation.

Case I.—A young woman with right femoral hernia, strangulated for one week. Bowel was found gangrenous and excised. Death from shock the next day.

Case II.—Woman, æt. sixty-five years; left inginual hernia. On opening the sac the bowel was found strangulated and dark in color. The hernia was reduced, but the symptoms of obstruction continued, and five days later the sac was opened and the intestine found strangulated by a band within the ring. The bowel was drawn out, the strangulated portion excised, and the ends sutured. The patient died of shock.

Case III.—Woman, æt. forty-two years; had been treated by Christian scientists for five days. There was a large umbilical hernia with gangrenous intestine. The sac was filled with fecal matter. The constriction was found, and the bowel drawn out and excised beyond the constriction, and the ends united. This patient recovered perfectly and has remained well.

Case IV.—A woman with enormous umbilical hernia, with strangulation and gangrene. The fecal abscess opened by natural processes, and the woman has been in perfect health since, with the exception of the artificial anus. This will be operated on next week.

In the two cases of excision the time required for the passage of the sutures was twenty minutes; the whole operation did not exceed one hour. The longer the operation the more are the chances reduced.

Reference was then made to the use of the bone-plates of Senn and the catgut rings of Abbe. These devices may do more in these cases than anything else. Every case must be decided on its merits. The danger to life of resection in suitable cases is probably not greater than the danger of artificial anus with the dangers attending the subsequent closure of the same. The danger of the latter operation is especially great when the opening is near the stomach. Artificial anus is also objectionable on account of the excoriation of the skin which attends it, and also the risk of giving way of the sutures.

The author concluded as follows: It seems to be the general opinion of surgeons everywhere that under some circumstances excision and sutures are justifiable. It seemed to him that the primary operation should only be done where all the conditions are favorable. It is preëminently a hospital operation. Every appliance and preparation should be ready for its most perfect performance. It is not an operation to be recommended to the general practitioner or to the unqualified operator. It depends for success more often upon rapid and skilful execution than almost any other operation.

There is no doubt that in some cases this procedure is imperative, where the part necrosed is too high up for intestinal nutrition to be maintained. The difficulty, of course, is to recognize this state of things. Even when it can be demonstrated that the jejunum is gangrenous,

excision is not justifiable unless the patient's condition offers some hope, and there is a chance that the relief of the symptoms of obstruction may be followed by sufficient improvement to make a secondary operation possible.

DR. D. HAYES AGNEW said that his experience was too limited to enable him to say much upon this subject. He recalled three cases of gangrenous hernia. One was a case of inguinal hernia, in which he excised a portion of the bowel. The patient recovered from the immediate effects of the operation and passed out of his hands. Some months afterward he was advised by another surgeon to apply a compress to the external opening so as to compel nature to establish a communication between the two portions of the bowel. He did so with fatal results. The second case was one of femoral hernia which had lasted six or seven days. It was laid open and the patient recovered. As the granulations filled the opening communication took place between the two portions of bowel. The third case was one of umbilical hernia. He opened the sac, excised ten inches of intestine and carefully stiched the ends. The patient died of hemorrhage at the end of two days. It occurred to him that it would be wise in such a case to stitch the intestine to the skin, and at a subsequent period do the operation of Dr. Abbe.

DR. W. T. BRIGGS, of Nashville, said that although he had seen many cases of strangulated hernia, he had met with but three instances of gangrenous intestine. In the first case he opened the abscess and the fecal contents escaped. The patient lived some time, but died of inanition. In the second case he attached the bowel to surrounding parts and made an opening in it. The patient died in twenty-four hours. The third case he left entirely to nature and the patient recovered with an artificial anus.

DR. P. S. CONNER, of Cincinnati, had had three cases of gangrenous hernia, and had seen a fourth in the practice of Dr. Dandridge. The operation of intestinal anastomosis is valuable. It can be performed rapidly; it is simple, and establishes the continuity of the intestinal tract more perfectly than any other operation that has been suggested.

DR. W. F. PECK, of Davenport, from his experience, thought that great benefit in the way of prevention would result from educating the subjects of this trouble in regard to the dangers of hernia and the way of reduction.

DR. J. EWING MEARS, of Philadelphia, had had two cases: one of umbilical hernia, in which he made an artificial anus; the other of femoral hernia, where he performed resection, and returned the intestine to the abdomen. Both resulted fatally inside of forty-eight hours. A surgeon of Vienna has suggested that in these cases the gangrenous intestine be withdrawn from the abdomen and held in place outside by a tampon of iodoform gauze. In this way the intestine can be kept under observation and treated as seems best.

DR. W. W. KEEN thought that the introduction of the method of intestinal anastomosis by the bone plates of Senn or the catgut rings of Abbe is a great advance over former methods. The mortality following this method is greatly less than that following reunion of the ends of the bowel.

DR. T. A. MCGRAW, of Detroit, had heard nothing in regard to the pathological condition of the bowel above the seat of stricture. In some cases the bowel is healthy immediately above the point of strangulation, while in others the inflammatory process extends six to ten inches above the point of constriction. This must make a great difference as regards the results of operation.

DR. A. VANDER VEER eleven years ago saw a case of gangrenous inguinal hernia, but the condition was so bad that nothing was done. The patient died a few hours later. Two years ago he saw a similar case, except that the patient was younger and the collapse not so great. He opened freely, and left it to nature. The man recovered with an artificial anus.

DR. H. H. MUDD, of St. Louis, thought that gangrenous hernia is not so rare as seems to be the general impression. He could recall at least seven cases, three of which occurred more then four years ago, and all died. During the last four years he had operated on four cases, excising a portion of the bowel, with recovery in one case.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, May 16, 1889.

ANDREW H. SMITH, M.D., VICE-PRESIDENT, IN THE CHAIR.

DR. O. D. POMEROY, Chairman of the Section on Ophthalmology and Otology, on behalf of his Section presented to the Academy a fine

PORTRAIT OF THE LATE CORNELIUS R. AGNEW,

with a few eulogistic remarks which were seconded by Drs. Fordyce Baker, A. Jacobi, and H. D. Noyes.

DR. W. GILMAN THOMPSON then read a paper on

THE THERAPEUTIC VALUE OF OXYGEN, WITH EXHIBITION OF ANIMALS UNDER HIGH PRESSURE OF OXYGEN.

He said he had been impressed by the fact that while some observers claimed the most brilliant therapeutical results from the use of this agent, others hold that it was but of little, if any, practical value, and still others used it in such a vague way that no reliance could be placed upon the results obtained. As was well known, the ordinary pressure of the atmosphere was fifteen pounds to the square inch. Of this amount, three pounds of pressure was exerted by the oxygen, and twelve pounds by the nitrogen. The first question that arose was, Does an increased pressure really cause more oxygen to be absorbed? Under any circumstances the hemoglobin of the blood could take up but two and a half per cent. more of oxygen, and it was also a fact that it could not enter the plasma to any extent.

In most of the older text-books it was stated that animals could not live in pure oxygen, the system being burned up as it were by the increased tissue-changes excited by it. This idea, however, was an entire mistake, as was conclusively demonstrated by Dr. Andrew H. Smith in the series of experiments made by him in 1869 and 1870. Having referred to some of the symptoms produced in the human subject by the inhalation of oxygen, he said that very little additional oxygen could be made to enter the system by any amount of pressure short of that which would produce injurious effects.

He then exhibited the apparatus which he had had

constructed for the purpose of exposing animals to high pressures of oxygen. It consisted of a strong iron drum or chamber, with glass-covered openings at each end, in which the animal to be experimented upon was to be placed; and to this oxygen was supplied at any degree of pressure desired from a cylinder containing the gas, at a pressure of two hundred and twenty-five pounds to the square inch. Two animals, a monkey and a pigeon, which had been exposed for one hour to a pressure of thirty pounds to the square inch, oxygen, in addition to the ordinary pressure of the atmosphere, fifteen pounds to the square inch, were taken from the drum in an apparently perfectly normal condition.

Dr. Thompson next proceeded to make a detailed report of a number of experiments he had made upon animals which were in a normal condition at the time the experiments were commenced; the animals being dogs, cats, pigs, monkeys, guinea-pigs, pigeons, and alligators. It was found that all the animals could exist comfortably in the oxygen until a pressure exceeding three atmospheres was employed. The higher orders of animals were affected before the lower ones. As a rule, a decided fall of temperature, often amounting to from 4° to 6°, was observed; and only in cold-blooded animals was there any rise in temperature. This marked decrease in temperature he did not believe was to be attributed at all to the effect of the oxygen, but to the profound disturbances in the system caused by the high pressure employed. If, as was claimed by the older writers, a greatly increased tissue-metamorphosis was caused by oxygen, this would unquestionably be accompanied by an increase, and not a diminution, of the body temperature. In a paper read before the Royal Academy of Madrid, Valenzuela reported similar results. In animals subjected to oxygen in a pneumatic chamber under increased pressure, he found that the temperature was reduced several degrees, and rabbits in which septicæmia had been artificially produced, had the temperature reduced to normal.

In such of the animals as died as a result of subjection to high pressure of oxygen, or were killed after removal from such pressure in the pneumatic drum, Dr. Thompson found pulmonary engorgement and dilatation of the right heart. The convulsions which usually resulted when the pressure was carried to a high point, were, as a rule, quickly controlled by blowing off five pounds of pressure. He also tried the experiment of subjecting animals on alternate days to high pressure of oxygen and to compressed air, the series of observations being maintained for a considerable period. The cause of the convulsions produced by exposure to high pressure of oxygen he said was as yet undecided, but he was inclined to attribute it to the difference in the diffusion of oxygen and carbon dioxide under different degrees of pressure.

A second series of experiments was performed upon animals in which abnormal respiration had been induced. Dyspnœa might be classified as follows:

(1) That due to abnormal conditions of the air.
(2) Due to abnormal conditions of the blood.
(3) Due to obstructed circulation.
(4) Due to diminished surface from aëration.
(5) Due to neurotic influences.

In a cat in which dyspnœa was produced by cutting both vagi instant relief was given by exposing the animal to oxygen; while, on the other hand, the dyspnœa was increased by compressed air. In the second experiment a canula was introduced into the pleura of a dog. In the third pulmonary congestion was caused in a cat by injecting a solution of nitrate of silver into the lung-tissue, and the dyspnœa resulting therefrom was greatly relieved by oxygen. In other experiments the lung was compressed by injecting considerable quantities of water into the pleura, and in still others the animals were bled to the extent of many ounces. The results of these experiments, he said, went to show that oxygen does aid, in a moderate degree, certain types of dyspnœa.

In considering the therapeutic value of oxygen it was to be borne in mind that it was a physical impossibility to take oxygen into the blood. This agent had been employed, first, as curative in certain diseases of the blood and circulation, and, second, as a palliative in dyspnœa due to various causes. Of late, its use has increased to such an extent that two or three hundred thousand gallons of it were now consumed annually in New York City alone. Among the affections, in addition to dyspnœa from whatever cause, in which it was claimed that it had proved of benefit, were anæmia, chlorosis, croup, chronic gastric catarrh, migraine, cholera, and opium narcosis. It was used more generally in this country and on the Continent of Europe than in England. In Paris a supply was kept on hand at the stations along the Seine for use in resuscitating persons rescued from the river, and also at some of the fire and police stations.

In anæmia, chlorosis, etc., Dr. Thompson said he could see but little advantage over good fresh air in giving diluted inhalations of oxygen two or three times a day, as was the usual practice in such affections. It did not seem rational to him to expect that sufficient oxygen could enter the system, under these circumstances, to produce anything but a temporary effect. In cases of blood-poisoning, again, he had failed to see any relief afforded by oxygen. In certain subjective cases of dyspnœa it might relief, but in a case of poisoning by illuminating gas, which he had seen at the Presbyterian Hospital, it was kept up for nearly three days without any effect either on the rate of breathing or on the cyanosis present. In cardiac diseases his experience with oxygen had not been encouraging, and he referred particularly to a case of malignant endocarditis, in which it proved of no avail in relieving the dyspnœa. In certain cases of asthma and of uræmic dyspnœa, however, it gave decided relief, and in such he believed it was an invaluable therapeutic agent; though not, of course, curative.

DR. J. WEST ROOSEVELT spoke of the relation of the oxygen inhaled to the amount of oxygen absorbed, and said that while the amount which entered the plasma or the hemoglobin of the blood was comparatively small, he believed it was sufficient to cause appreciable results in many instances. As to the therapeutic value of oxygen, in the neurotic form of dyspnœa we had a condition in which the mere act of inhalation and the engaging of the attention of the patient would often have a beneficial effect. With oxygen in anæmia he had met with fairly good results, though the patients improved less rapidly than under the use of iron. If in any case the hæmoglobin was not saturated an improvement showed that more oxygen was carried than under ordinary circumstances. In his experience oxygen had proved of

considerable value; and in cases of diminished surface for aëration he had seen cyanosis decidedly improved under its use.

DR. GEORGE L. PEABODY said that so many circumstances were involved in estimating the value of an agent like oxygen that it was difficult to arrive at positive conclusions respecting it. Thus, when it was not the only therapeutic agent employed, it was impossible to say just how much benefit was derived from it; and this difficulty was increased in diseases which naturally tend to recovery. The question of the utility of oxygen, he believed, was still undecided. When the idea of its administration first occupied the profession it was the practice to give internally chemical substances, like chlorate of potassium, for instance, which were known to be rich in oxygen. It was far from certain, however, whether they yielded up their oxygen on entering the body; and even if this were so, it seemed probable that the resulting compounds might have a more or less caustic effect upon the tissues. This was apparently the case with osmic acid.

Later, it had become the practice to give oxygen by inhalation so that it would come directly in contact with the lungs. Its absorption depended probably on the amount of hæmoglobin in the blood at the time the oxygen was inhaled, but in any event the amount absorbed was unquestionably small. There was good reason to doubt the alleged efficiency of this agent, and personally he believed that just as much relief, as a rule, could be obtained from fresh air. It might be tried, however, in maladies attended by dyspnœa in which the blood is unchanged, such as pneumonia, emphysema, croup, and asphyxia from toxic gases; although, as Dr. Thompson had said, in poisoning from illuminating gas it had failed to give relief. There was no justification, he thought, for the extensive use of oxygen in general diseases, such as anæmia, chlorosis, gout, lithæmia, etc. Although the pulmonary gymnastics of the inhalations might have a beneficial effect in certain instances, there were other remedies which could be used with much greater advantage. That the use of oxygen hastened recovery in such diseases he did not believe, and the recognized facts of physiology were at variance with any such conclusion.

DR. BEVERLEY ROBINSON said that he differed entirely from Dr. Peabody, and that his clinical experience in many conditions afforded the most conclusive proof of the immediate and marked relief resulting from the use of pure oxygen. In anæmia he had found that those cases were most improved in which oxygen was used in connection with iron. The purity of the gas was a point of the utmost importance, and he said that a gas which he had formerly employed gave such poor results that he ceased to use it, There was a gas now manufactured in New York which was said to contain a certain amount of nitrogen monoxide; and it was worthy of note that Brown-Séquard had expressed the opinion that nitrogen was of great service in preventing the irritating and intensely exciting effects of oxygen alone.

In albuminuria connected with atrophic nephritis he had found the general nutrition of the patient notably improved under the use of oxygen; the digestive and assimilative powers being greatly assisted by it. Even in phthisis, while it did not have curative effect, it might prove beneficial. In the first place, the inhalations caused the patient to expand his lungs thoroughly; secondly, oxygen was itself an antiseptic, and, therefore, indicated; and, thirdly, it had the effect of improving the general nutrition. As had been well said, oxygen was really prescribed every time that a patient was sent to the mountains, to Southern California, to the plains, or on a sea voyage. But there were many cases in which it was impossible to send patients away, and he believed it was possible to stimulate the hæmoglobin in the blood, and thus enable the patient to carry more oxygen. In the use of such agents as oxygen he did not think we should be guided so much by experimental researches as by practical clinical experience. Without considering the curative effects of oxygen, there were certainly many cases where the last hours of patients could be rendered much more comfortable by resorting to its use.

DR. WALTER MENDELSON said that he felt compelled to concur with Dr. Peabody from what he had observed of oxygen. In anæmia, it was true, he had seen marked results under its use, but he did not believe that the benefit was due to this agent. He cited the case of an old man who inhaled ten gallons of oxygen a day, and became greatly improved. This improvement, however, he was convinced, was due to the systematic expansion of the lungs and to the moral effect of the knowledge that something unusual was being done for him. In cases of dyspnœa from various causes he had seen more or less relief afforded by oxygen; yet all the patients died. Still, as Dr. Robinson had said, their last moments may have been rendered more comfortable by the inhalations.

DR. MARY PUTNAM JACOBI said that the amount of oxygen which the hæmoglobin carries varies under different circumstances. In asphyxia of various kinds the physiological capacity remains the same, and, therefore, the indication is to administer oxygen. The correctness of this has also been shown by clinical experience. In anæmia, and especially chloro-anæmia, on the other hand, the hæmoglobin is diminished. The condition is precisely the reverse from that met with in asphyxia, and we cannot cause a much greater amount of oxygen to be absorbed.

DR. ANDREW H. SMITH was gratified to learn that the work which he did twenty years ago in the main still stands good. At that time he had demonstrated that animals could live perfectly well for four days in pure oxygen, care being taken to remove the effete products of respiration. It was his opinion that under ordinary conditions the blood is not fully saturated with oxygen, and that the point of saturation corresponds with the physical demand. This allowed a pretty wide margin, and it was perhaps within this margin that a considerable amount of oxygen could be absorbed by the blood. Thus the demand for oxygen was much greater in athletes engaged in violent physical exercise than in individuals making but little physical exertion. Therapeutically he had seen the greatest benefit received from oxygen in catarrhal conditions of the air-passages, such as was met with in suffocative bronchitis. In such cases he was at a loss how to explain the relief afforded by the oxygen, unless it was a fact that under these conditions the blood does not take up as much oxygen as the system requires. When pneumonia was present so many conditions were brought into play that the matter was

much more complex, and the relief afforded by oxygen very uncertain. Dr. Smith also said he had used oxygen with satisfactory results in opium poisoning.

DR. THOMPSON, in closing the discussion, said that convulsions were produced in the animals experimented upon by the rapid increase of the pressure, and that such convulsions were quickly relieved by the rapid withdrawal of a portion of the pressure. He could not agree with Dr. Smith in his opinion regarding the saturation of the blood with oxygen, since he thought there could be no question that even under ordinary conditions the hæmoglobin is practically saturated with oxygen. In reply to Dr. Roosevelt he said that many individuals suffer from dyspnœa whose blood contains more oxygen than that of those with anæmia or suffering from hemorrhages. Dr. Robinson was certainly mistaken in attributing any irritating effects to oxygen. Pure oxygen had no irritating effects whatever, as had been repeatedly demonstrated. It produced no burning up of the tissues at all, as had been formerly supposed, and he could see no advantage of the nitrogen monoxide referred to over ordinary air.

CORRESPONDENCE.

ANTIPYRIN A CONTRA-INDICATION IN MENSTRUATION.

To the Editor of THE MEDICAL NEWS,

SIR: Your extract from report of Dr. H. Huchard, in THE MEDICAL NEWS, February 23, 1889, page 215, I believe is valuable rather as showing peculiar susceptibility to antipyrin on the part of Dr. Huchard's patient, and perhaps over-dosage, than as demonstrating any danger in administering antipyrin in dysmenorrhœa in proper doses. Was not the stopping of the menstrual flow due rather to the disturbance of circulation than otherwise? I have given antipyrin for over two years to nearly every case of dysmenorrhœa coming under my care and with complete relief in nearly every instance and no diminution of menstrual flow. But I seldom find more than ten grains necessary and oftener find five grains sufficient, always beginning with the latter dose.

I believe it is a very valuable drug and capable of much good in much smaller doses than usually recommended, especially in dysmenorrhœa; anyone who will try will be surprised how many cases of dysmenorrhœa and wearing pains during first stage of labor will be relieved by five grains repeated as needed.

I have some reason to fear that its continued use blackens the teeth.

H. G. NORTON, M.D.

TRENTON, N. J., April 29, 1889.

NEWS ITEMS.

The American Laryngological Association.—The following is the programme for the Eleventh Annual Congress of this society, Washington, on May 30th and 31st and June 1st:

"Report of the Removal of a Supernumerary Tonsil: Specimen and Drawings." By E. Carroll Morgan, M.D., of Washington.

"An Œdematous Form of Disease of the Upper Air-passages." By Wm. C. Glasgow, M.D., of St. Louis.

"The Relation between Facial Erysipelas and Erythema on the one hand, and Intra-nasal Pressure on the other." By George W. Major, M.D., of Montreal.

"Acute Multiple Adenitis (Septic?); Œdema of the Larynx, with Spontaneous Cure; Laryngoscopic Appearances." By Samuel W. Langmaid, M.D., of Boston.

"Some Points in the Pathology and Treatment of Diseases of the Nasal Pharynx." By John N. Mackenzie, M.D., of Baltimore.

"Observations upon the Condition known as Adenoid Hypertrophy at the Vault of the Pharynx, and the Methods used for its Relief." By D. Bryson Delavan, M.D., of New York.

"Three Rare Cases. Illustrated." By George M. Lefferts, M.D., of New York.

"Warts in the Nasal Passages." By E. Fletcher Ingals, M.D., of Chicago.

"Some of the Manifestations of Syphilis of the Upper Air-passages." By T. Amory De Blois, M.D., of Boston.

"Note on the Galvano-cautery in the Treatment of Hypertrophied Tonsils." By Charles H. Knight, M.D., of New York.

"The Treatment of Diseased Tonsils when unattended with Hypertrophy." By John O. Roe, M.D., of Rochester.

"Experimental Methods of Studying the Actions of the Intrinsic Muscles of the Larynx." By Franklin H. Hooper, M.D., of Boston.

"Dysphonia Spastica." By Frederick I. Knight, M.D., of Boston.

"A Case of Sarcoma of the Thyroid Gland; pressure on the right sympathetic nerve; unilateral tonic spasm of laryngeal muscles; intermittent clonic spasm of opposite side; compression stenosis; tracheotomy; hemorrhage from gland twenty months later; pressure upon the left sympathetic nerve; death from disturbance in the functions of the two sympathetics." By J. Solis-Cohen, M.D., of Philadelphia.

"Memorandum of a Recurrent Laryngeal Growth, appearing Twenty-two Years after Removal." By Rufus P. Lincoln, M.D., of New York.

"Some Unusual Manifestations of Tuberculosis of the Larynx." By Clarence C. Rice, M.D., of New York.

"Report of Two Cases of Tuberculosis of the Tongue." By C. E. Bean, M.D., of St. Paul.

"The Advantages of Occasional Applications of Silver Nitrate in Chronic Laryngitis." By S. Solis-Cohen, M.D., of Philadelphia.

"Some Manifestations in the Throat of Lithæmia and Allied Conditions." By F. Whitehill Hinkel, M.D., of Buffalo.

"On the Local Treatment of Diphtheria." By J. C. Mulhall, M.D., of St. Louis.

"Hemorrhage from the Larynx." By Wm. Porter, M.D., of St. Louis.

The profession is cordially invited to attend the sessions of the Association.

The Johns Hopkins University.—The departments of pathology and biology at the Johns Hopkins University have been combined and will be called the department of Normal and Pathological Biology, with Professors

Martin and Welch at the head, assisted by Assistant Professors Brooks, Howell, and Councilman and Drs. Andrews and Mall. Those working in this department may take any or all branches, but the object of the arrangement is evidently to compel students to study normal biology first and pathology last. Under the first head will be included physiology, histology, morphology, and botany, and in pathology will be included gross and microscopical pathology, experimental pathology, and bacteriology.—*Maryland Med. Journal*, May 11, 1889.

Resolution on Dr. Keen's Retirement from the Woman's Medical College.—At a stated meeting of the Faculty of the Woman's Medical College of Pennsylvania, held May 18, 1889, the following resolution was offered:

"*Resolved*, That the Faculty of the Woman's Medical College of Pennsylvania have learned with deep regret of the resignation by Professor W. W. Keen of the Chair of Surgery in this College.

"Dr. Keen's enthusiasm as a teacher in a department for which he is eminently qualified, and his unhesitating surrender of time in doing a generous share of Faculty work, has made his connection with the College conspicuously valuable and helpful.

"The Faculty also desire to express their sense of personal loss in this severance of relations which have ever been most harmonious and agreeable, and to proffer their congratulations to Dr. Keen in view of his new appointment with warmer wishes for success and happiness in his future work."

Prof. Billroth's Sixtieth Birthday.—On May 6th, at 9 o'clock, Prof. Billroth commenced his clinical lectures for the present summer semester, and the opportunity was taken by his pupils and colleagues to give him a splendid ovation. The entrances to the clinic were decorated with flowers, and his working cabinet was almost transformed into a garden. Two hours before the beginning of the lecture the theatre was filled to the roof with students. At nine o'clock came the members of the committee of the "Billroth Feier," and those professors of the Vienna Medical Faculty who were not prevented by their duties from being present. There were present among other distinguished persons, Prof. Böhm, director of the Vienna General Hospital, and Profs. Lang, Fuchs, Kahler, Schnitzler, Chrobak, Dittl, and Frisch, etc. Of Billroth's former pupils, there were Prof. Wölfler, of Gratz, Prof. Mikulicz, of Königsberg, and Prof. Gussenbauer, of Prague.

At nine o'clock, Prof. Billroth, accompanied by his two present assistants, Dr. Salzer and Dr. von Eiselsberg, appeared in the theatre, and was received with a tempest of applause. An address was presented in the name of the students, to which Prof. Billroth replied in a speech in which he gave a sketch of the development of the medical sciences since the reign of the Empress Maria Theresa. He also alluded to the part which surgery had to play in the future, stating that its first task would be to get rid of tuberculosis. Among the first to congratulate Prof. Billroth at his own house was the Servian minister, Dr. Gjorgewitch, an old pupil, who presented him with the Grand Cross of the Servian St. Sava Order.

Among the numerous presents was a picture representing Billroth's famous teacher, Bernard von Langenbeck, in the middle; around this central figure are the gymnasium and University of Greifswald, the hospital and aula of the University of Göttingen, the University and Bethanien Hospital of Berlin, the University of Vienna, the Rudolphiner Hospital of Döbling (near Vienna), the Austrian House of Lords, the General Hospital of Vienna, and Billroth's house.

The medal presented to Prof. Billroth by the students bore on the obverse the words: *Theodorus Billroth ætatis suæ LX*, with a portrait of the professor; on the reverse the words *Medico artifici pietate conjuncti discipuli et sodales*. A torchlight procession, which was arranged by the students for this evening, was forbidden by the police, probably in consequence of the recent tramcar riots.—*The British Med. Journal*, May 11, 1889.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 14 TO MAY 20, 1889.

By direction of the Acting Secretary of War, a Board of Medical Officers, to consist of: ANTHONY HEGER, *Colonel and Surgeon*; F. C. AINSWORTH, *Captain and Assistant Surgeon*; and JOHN O. SKINNER, *Captain and Assistant Surgeon*, will assemble at the U. S. Military Academy, West Point, New York, about June 1, 1889, to examine into the physical qualifications of candidates for admission to the Academy and members of the graduating class.—Par. 9, *S. O. 108, A. G. O.*, May 10, 1889.

By direction of the Acting Secretary of War, the following-named officers are detailed to represent the Medical Department of the Army at the annual meeting of the American Medical Association, to be held at Newport, Rhode Island, on the 25th of June, 1889: SAMUEL M. HORTON, *Major and Surgeon*; JOHN S. BILLINGS, *Major and Surgeon*; CHARLES SMART, *Major and Surgeon*.—Par. 15, *S. O. 110, A. G. O.*, May 13, 1889.

By direction of the Secretary of War, the leave of absence granted to AARON H. APPEL, *Captain and Assistant Surgeon*, in S. O. 38, April 16, 1889, Division of the Missouri, is extended twenty days.—Par. 2, *S. O. 114, A. G. O., Washington*, May 17, 1889.

By direction of the Secretary of War, leave of absence for four months, with permission to go beyond sea, is granted WILLIAM STEPHENSON, *Captain and Assistant Surgeon*.—Par. 15, *S. O. 114, A. G. O., Washington*, May 17, 1889.

By direction of the Acting Secretary of War, leave of absence for six months, on surgeon's certificate of disability, is granted R. G. EBERT, *Captain and Assistant Surgeon*, and E. B. MOSELEY, *Captain and Assistant Surgeon*.—Pars. 5 and 6, *S. O. 109, A. G. O.*, May 11, 1889.

By direction of the Acting Secretary of War, LOUIS S. TESSON, *Captain and Assistant Surgeon*, is relieved from duty at Watervliet Arsenal, New York, and ordered to Fort Sidney, Nebraska Territory.—Par. 9, *S. O. 109, A. G. O.*, May 11, 1889.

GORGAS, WILLIAM C., *Captain and Assistant Surgeon*.—Now on duty at Fort Barrancas, Florida, will report in person to the commanding general Department of the Missouri, for temporary duty with troops in the field.—Par. 1, *S. O. 112, A. G. O., Washington*, May 15, 1889.

GORGAS, WILLIAM C., *Captain and Assistant Surgeon*.—Will accompany the command from Fort Barrancas, Florida, and proceed with Battery "H," Second Artillery, to Fort Adams, Rhode Island, and to return to his proper station on completion of this duty.—Par. 5, *S. O. 108, Headquarters Division of the Atlantic, Governor's Island, New York City*, May 13, 1889.

RAFFERTY, OGDEN, *First Lieutenant and Assistant Surgeon*.—Is granted leave of absence for one month.—Par. 3, *S. O. 29, Headquarters Department of Texas, San Antonio, Texas*, May 13, 1889.

KEAN, JEFFERSON R., *First Lieutenant and Assistant Surgeon* (Fort Robinson, Nebraska Territory).—Is hereby granted leave of absence for one month, to take effect between the 1st and 15th of June, 1889, with permission to apply at Headquarters Division of the Missouri, for an extension of fifteen days.—Par. 2, *S. O. 48, Headquarters Department of the Platte*, May 13, 1889